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LET THE GIN BE HIGH & DRY!
Really Dry Gin

CONTINENTAL SELLING PRICES: AUSTRIA Sch 15; BELGIUM Fr 25; DENMARK Kr 3.5; FRANCE Fr 3.5; GERMANY DM 2.0; ITALY L 600; NETHERLANDS Fl 2.0; NORWAY Kr 3.5; PORTUGAL Esc 25; SPAIN Ptas 50; SWEDEN Kr 3.25; SWITZERLAND Fr 2.0; EIRE 16p

NEWS SUMMARY

GENERAL
Nuclear leak in U.S. plant

An emergency was declared yesterday at a U.S. nuclear power plant after a radiation leak inside one of its reactors.

The Nuclear Regulatory Commission sent inspectors to the plant in central Pennsylvania, and all non-essential employees were evacuated.

The leak, which reinforces U.S. unease about nuclear safety, has been blamed on a cooling system failure which released radiation inside the reactor containment shell. One seal report claimed radioactive steam had escaped into the atmosphere. **Back Page**

BUSINESS
Gilts up by 1.15; Equities down 0.9

GILTS traded strongly as stock markets experienced their busiest trade for two years, but eleventh-hour nervousness over the no-confidence vote slowed the pace and longs closed up. Shorts also settled with marginal improvements and the Government Securities Index closed 0.15 up at 74.39.

EQUITIES reacted to the movement in Gilts and profit-taking started to develop among the leaders, although many secondary stocks remained near the best of the day. The FT Ordinary Industrial Index closed 0.9 lower at 538.3, representing a turnaround of 6.1 from the noon calculation.

INVESTMENT dollar premium fell sharply to 56 1/2 per cent against 61 1/2 per cent. **Page 30.**

STERLING reacted nervously falling 40 points to close at \$2.0495. Its Bank of England index fell to 65.5 (65.5).

GOLD rose by \$1 to close at \$244.

WALL STREET was up 1.62 at 873.18 at mid-session.

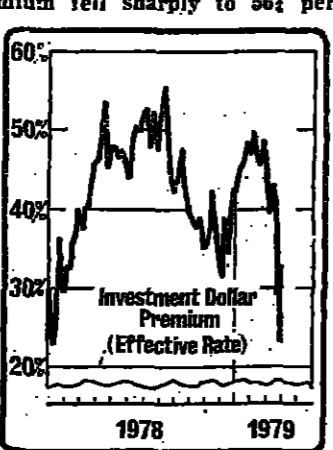
RAPIDLY deepening world recession could occur over the next decade unless major structural changes are made in the pattern of trade, according to a group of Cambridge economists. **Page 8 and Back**

INLAND REVENUE is appealing against a tax commissioner's ruling that Marine Midland Bank should not have to pay Corporation Tax on sterling gains from non-sterling assets financed through foreign currency loan stock. **Page 6**

LOYD'S OF LONDON officials are considering mounting a rescue for the stricken underwriting syndicate, formerly managed by Mr. Frederick Sasse. **Page 6**

THEME of recommendations in the Green Paper on restrictive trade practices policy is to strengthen and make more selective existing competition law, while adding a greater degree of flexibility. **Page 7 and Back**

RIO TINTO ZINC, the biggest of the London mining houses, is considering participation in Mr. Robert L. Sprinkel's scheme to rescue the failed Wheel Jane tin mine near Truro in Cornwall. **Page 6**



Troops close in Kampala

The United Nations was preparing yesterday to evacuate dependents of its personnel in Kampala as Tanzanian-backed forces invading Uganda closed in on the capital.

Nairobi diplomats reported that the invading troops had advanced five miles from Mpigi, south-west of Kampala, and were occupying the village of Yabingo, about 13 miles from the capital. **Back Page**

Summit demand

Raq and Syria yesterday called for a full summit to decide on more extensive economic measures against President Anwar Sadat of Egypt, after he signing of the peace treaty with Israel. **Page 18**

Erry inquiry

The Government has decided to proceed with its inquiry into weight limits for lorries. The probe will also consider the impact of lorries on people and their environment. Transport Secretary William Rodgers told the Commons yesterday. **Back Page. Aid for new rail rolling stock. Page 6.**

Bomb threat

Part of the U.S. Embassy in Moscow was evacuated after a man walked in and threatened to explode a bomb if he was not given a visa to leave the Soviet Union.

Lock-out protest

Riot police used smoke bombs to disperse demonstrators protesting at the closure of Ford Motor's plant near Valencia, Spain. Ford-Espana, the company's subsidiary, declared a lock-out after a series of strikes. **Page 3**

Recruits plan

The Government is to press ahead with plans to recruit two or three experienced industrialists for under-secretary posts, in spite of opposition from Civil Service unions.

Record perm

Hairdresser Irene Powell of Port Talbot, West Glamorgan, filled in a Littlewoods pool coupon for the first time and won a record £882,528 on her 20th birthday.

Briefly

Two Britons and a Pakistani were missing feared dead after being trapped by crude oil flooding the pump chamber of the British tanker Texaco Spain in Rotterdam.

Police announced a curfew in a large area around Rhodesia's international airport after black nationalist guerrillas fired anti-tank shells into a white Salisbury suburb. There were no injuries.

Snow made driving treacherous in many parts of the UK yesterday and more wintry weather is forecast today. **Weather Back Page**

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Labour needs working majority, says Premier

Callaghan admits election is essential

BY RICHARD EVANS, LOBBY EDITOR

MR. JAMES CALLAGHAN admitted for the first time yesterday during the Commons debate on the Government's proposals for a general election must take place soon.

He declared during a spirited defence of the Government's policies that if there was to be economic success, Labour needed a working majority, "and we shall seek that in the early future."

Pugnacious

A Government defeat would mean an immediate election at the end of April or early May, but even survival would not greatly lengthen the Government's life. Most Ministers see little point in trying to survive from day to day.

This belief came through time after time in Mr. Callaghan's pugnacious speech in which he highlighted the Government's achievements and warned of the dangers of a Conservative administration under Mrs. Thatcher.

The Conservative leader, making one of the most critical speeches of her career, called for an immediate general election as the only way to renew the authority of parliamentary government. "This Government has failed the nation, lost credi-

bility and it is time for it to go," she declared.

The opening speeches in the debate took place against a background of frantic last-minute attempts to persuade key minority party MPs to change sides. There were numerous rumours about the attitude in particular of many Northern Ireland MPs.

The key element remains the attitude of the seven Ulster Unionist MPs and Mr. James Moynaux, their parliamentary leader, appeared to leave the door slightly ajar for an 11-hour deal. He made an enigmatic speech underlining the importance of local government reform in the province.

The last time a government was defeated on a motion of no confidence in the Commons was in 1924 when Mr. Ramsay MacDonald's minority Labour administration lost office.

Mr. Callaghan made no attempt to offer any political carrots to the minority parties, but he did repeat his offer of all-party talks on devolution should the Government survive the division.

Mrs. Thatcher's speech was surprisingly low key, largely because of a deliberate tactic by Labour MPs to maintain a complete silence as possible. There was no attempt to heckle

or to intervene and in these circumstances the Tory leader's speech appeared to lack impact.

She launched a detailed critique of the Government's failure to achieve its economic objectives on prices, employment and manufacturing output, and she castigated it for the "total collapse" of its social contract strategy.

In her view, rarely could Britain's standing in the world have been lower since the war or its defences weaker. "Britain is now a nation on the sidelines," Mrs. Thatcher declared.

Over the past five years of Labour rule far too little attention had been paid to wealth creation, and far too much to wealth distribution. The Tories would give top priority to a policy of incentives and taxation cuts.

Despite the Government's pronouncements on incentives there had been no action. "The lack of that policy has led to a haemorrhage of talent and in management, and resentment among the skilled," she said.

Her argument **Page 10**

Pensions to rise 12 1/2%

BY ERIC SHORT

BASIC STATE retirement pensions are to rise by about 12 1/2 per cent at the next uprating in November, to about 22 per week for a single person and about £35 per week for a married couple.

The rises, announced by the Prime Minister yesterday, pre-empting the Chancellor's Budget statement, would provide for a rise of about £2.50 a week for a single person and £4 a week for a married couple. The present weekly rates are £19.50 and £31.20 respectively. The new rates represent increases of 12.8 per cent and 12.2 per cent.

While any incoming Conservative Government would not be obliged to implement these precise increases in November, it would be bound by law to revise pension rates by that date to take account of inflation.

Parliament Page 10

Algerian oil price to rise by 25%

BY RICHARD JOHNS

ALGERIA has decided on a price of about \$18.50 per barrel of its light, non-sulphurous crude. Mr. Ait Laoussine, vice-president of the State oil corporation Sonatrach, said yesterday.

Such an increment would be 25 per cent above the price set for the first quarter. Speaking on his departure from Geneva at the end of the Organisation of Petroleum Exporting Countries' meeting, Mr. Laoussine said that the market could support such a price.

It would involve a rise in the quality premium charged for Saharan and Zabaitire varieties to \$1.50. This would be in addition to the extra \$1.10 on the basic price and the \$1.20 surcharge agreed by all members of OPEC except Saudi Arabia and possibly the United Arab Emirates.

North Sea oil contract prices will rise in line with those set by the North African producers. Prices for the main crudes, such as Forties and Ekofisk, are likely to be increased to about \$17.50-\$18 a barrel, a rise of 16 per cent on the first quarter level of \$15.50.

Dr. Mana Al Otaiba, Minister of Oil, said on Tuesday that his Government would preserve its existing differentials but left the OPEC conference without making it clear whether they would be based on the new official price of the "marker" crude or on the \$1.20 surcharge as well. Oil industry executives believe the UAE will do the latter.

In the meantime, there can be no assurance that Saudi Arabia will keep its rates adjusted to official \$14.542 base reference agreed upon by OPEC for the whole of the second quarter. On Tuesday night Sheikh Ahmed Zaki Yamani, Saudi Minister of Oil, appeared to leave the door open for moving into line with the kingdom's intention to impose a surcharge on top of the official rate he said: "We are not going to apply this. It is not our intention right now."

Sheikh Yamani suggested that the tight market would be eased by the fact that Venezuela, Iraq and Nigeria would continue to produce at the levels reached as a result of the shortfall in Iranian supplies.

However, Venezuela has stated that it wishes to go back to the old level. Nigeria, at the very least, will be under heavy pressure from fellow North African producers to cut back. The Iranian delegation claimed it had been assured by Nigeria that it would do so.

Mr. Taveh Abdel-Karim, Iraq's Minister of Oil, said his country had raised output from 2.5m b/d to 3m b/d and would drop to the old level.

In contrast, Sheikh Yamani said that Iraq's production had risen as high as 3.5m b/d, of which no less than 1m b/d was being sold on the spot market—a practice that he expected to continue.

On the basis of optimistic forecasts about exports by these three producers and Iran he envisaged supply and demand coming into balance by the end of the year, eliminating the surcharge in the process—but only so long as consumption was reduced by 2m b/d and there was no more stock-piling by the industrialised country. Informed that the U.S. had stopped adding to its reserves he said: "That's good news."

In line with the OPEC communique's strictures about oil company profits arising from the Iranian crisis and its warning to those charging developing countries more than the "OPEC price," he threatened reprisals.

China to raise \$500m loan through Arab consortium

BY OUR FOREIGN STAFF

CHINA is raising what appears to be its first syndicated loan in the international banking market.

The loan, for \$500m (£244m) is being arranged through the Paris-based consortium, Union de Banques Arabes et Francaises, with the co-operation of other Arab banks. It is not tied to particular development projects or imports from specific countries.

The terms are being kept closely guarded, but were believed by banking sources yesterday to be 0.5 points above the London InterBank Rate (LIBOR) over seven years.

Bankers were not surprised by the agreement, which appears to coincide with other measures that the Chinese are now taking to raise money on the commercial markets. There was surprise, however, that the first mandate should have been awarded to a largely Arab consortium. The loan is being

placed among mainly Arab institutions.

It also merged yesterday that a British bank has been approached to arrange a syndication for a loan believed to be about \$500m over five years.

Finalising

From Tokyo, it was reported as well that a group of 22 Japanese banks, which have been negotiating with China on credit terms, may agree to a 4 1/2 year loan for \$2bn also at 0.5 points above LIBOR. The Japanese had been seeking a margin of 1/2 of a point against Chinese attempts to reduce it to 1/4 of a point.

Japanese banks are also negotiating a six month refinancing facility with China for \$6bn. Agreement looks possible on a rate of 0.25 points above LIBOR.

The succession of deals suggests that the Chinese are now finalising both the amounts they

want to borrow and the terms which they are prepared to pay.

Up to now most of China's financing arrangements for its industrialisation programme have been made through government backed agencies such as Britain's Export Credits Guarantee Department.

The attraction to them of a loan raised through a group of Arab banks would seem to be that it involves no commitment to any of their major trading partners.

Chinese leaders have recently expressed caution over imports and credits, saying they did not want to borrow more than they could afford. This has been reflected in China's freezing contracts with Japan for \$2bn to \$3bn as a result of differences over the financial arrangements.

While the Chinese are in the process of revising their investment priorities—downgrading steel and heavy industry in favour of agriculture and light

George Weston in £195m bid for 51% of Hudson's Bay shares

BY ROBERT GIBBENS IN MONTREAL

THE Toronto-based George Weston food processing and distribution group yesterday made a C\$470m (£195m), for 51 per cent of the Hudson's Bay Company shares.

Weston is offering Bay shareholders cash, preferred stock or a mixture of both. The bid tops the C\$31.1 share offer in cash, worth C\$365m, made on March 1 by the Thomson family interests through two of their private Toronto-based holding companies.

The Bay urged its shareholders last Friday to reject the Thomson bid on the grounds that it was too low. It argued that its shares, which were trading at just over C\$20 before

the Thomson bid—while the last trade on Friday was around C\$23—were really worth C\$41.

Weston said Bay shareholders would have the option of the C\$23—were really worth C\$41. C\$40 cash per share or C\$40 in 8.25 per cent preferred shares at C\$20 in cash and C\$20 in preferred shares.

The choice would be limited only to the extent that "in the aggregate no less than 25 per cent and no more than 40 per cent of the purchase price will be paid in preferred shares and in any event a total of no more than C\$231m of preferred shares will be issued."

If more than 11.7m Bay shares are tendered under the offer, Weston would buy shares on a pro rata basis. However, it

reserves the right to buy a greater number.

If less than 11.7m Bay shares are tendered it reserves the right either not to purchase any shares deposited or to buy all shares deposited.

Weston said it had no intention of becoming involved in the Bay's day-to-day operating decisions. However, it would seek majority representation on the board to protect its investment.

Neither the Bay nor the two Thomson holding companies were prepared to comment immediately on the bid terms yesterday.

The London advisers of George Weston are Hambros Bank and N. M. Rothschild. **Lex, Back Page**

CHIEF PRICE CHANGES YESTERDAY

(Prices in pence unless otherwise indicated)

RISES		FALLS	
Excheq. 12pc '89...£44	+ 1/2	Savoy A	98 + 5
Apex Properties	114 + 7	Scottish TV A	80 + 5
Allen Harvey Ross	385 + 25	Sharna Ware	145 + 18
BPM A	92 + 8	Union Discount	380 + 15
Beecham	733 + 8	Wilkinson Mitchell	44 + 6
Burton A	296 + 8	Wilmot-Breedon	119 + 5 1/2
Cawoods	193 + 13	Yorkshire Chemicals	84 + 8
Car's Milling	123 + 13	BP	1144 + 26
County Dist. Props	194 + 13	Atherton Astimony	19 + 4
Feb Intl.	38 + 4		
Farnell Elect.	528 + 23	Assed. Fisheries	38 - 3
Hambro Life	490 + 17	Bluebird Conf.	79 - 4
Hanger Invs.	64 + 8 1/2	GKN	376 - 10
Intl. Thomson Cov.	360 + 15	Peterson Zochonis A	192 - 13
Jones (Ernest)	244 + 14	Sanderson Murray	40 - 13
Kalamazoo	63 + 7	Utd. Scientific	282 - 32
Kent (M. P.)	65 + 4	De Beers Ltd.	395 - 10
Morland	121 + 14	General Mining	427 - 23
Prudential	187 + 8	Union Corp.	827 - 13
Samuel Props.	129 + 8	Western Deep	742 - 36

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		A. Beckman	21
		Samuel Properties	25
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		Legal Gen. Assur.	25
		Prudential Cm.	28
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British built
by **TEREX** **GM**
the best on earth

and service by **BLACKWOOD HODGE**
the best on earth

Business confidence stays high in West Germany

BY ADRIAN DICKS IN BONN

BUSINESS confidence in West Germany remained at a high level in February, with more manufacturing companies taking an optimistic view of the next six months than in January, the IFO Institute reports today. But the institute expresses concern that further oil price increases could trigger off an inflationary spiral in West Germany, and help push the rate of price increases well above the 3.5 per cent expected this year. The institute's comments coincide with today's meeting of the Central Bank Council in Frankfurt, widely expected by the banking community to take the opportunity to raise discount rate from 3 to 3.5 per cent.

In addition to technical reasons prompting this step, Dr. Otmär Emminger, Bundesbank President, delivered a warning of his own about inflation earlier this week. Leaving aside the impact of further oil price rises, the IFO survey suggests that while the firmer economic trend has led to a greater number of price increases than in early 1978, many industries appear to have made their adjustments for the year.

The most notable sector for increasing prices in February was semi-manufacturers such as chemicals, iron and steel, non-ferrous metals and foundry products — all of which have only

in the past two or three months begun to report the benefits of economic recovery.

The survey shows a less satisfactory trend for producers of consumer durables such as household electrical appliances. But companies reported that they do not expect lasting ill-effects from the current check to demand from slower exports and from a high level of domestic stocks.

Manufacturers of capital goods, often seen as the key component of the IFO test, reported increased order books and output rates. This led many respondents to describe business conditions in February as closer to "normal" — a term that appears to refer to the years before the 1973-74 oil price increases.

Mechanical engineering and machinery producers, in particular, reported a further improvement in business, with a marked recovery in export orders.

Electrical engineering companies were less satisfied, while the data processing and office equipment industry continued to experience more difficulties.

The motor industry remained the strongest point in the German economic picture, with private car and commercial vehicle manufacture still apparently booming.

Swedish N-plants approved

By John Walker in Stockholm

THE BOARD of the Swedish Nuclear Power Authority has voted to go ahead with the fuelling of two more nuclear power stations. The decision has come as a great relief to the Liberal minority Government which has promised to follow the Board's decision.

Disagreement among the political parties over the nuclear power issue broke up the three-party Non-Socialist Government last year.

The two nuclear power stations involved are Ringhals 3 and Forsmark 1. They will bring to eight the total of stations already on stream, or nearing completion. The Authority has plans for 13 stations.

Voting by the Board was six for and two against.

The conflict over the nuclear energy programme remains at the centre of the political stage and is likely to become more controversial as the time approaches for the general election to be held in September.

There is also the important issue of safe storage of nuclear waste, and whether it can be stored in caves.

Paul Lendvai reports on Czechoslovakia's deceptive political calm

Economic fears break through



Prime Minister Lubomir Strougal (left) and President Gustav Husak: pragmatic attitudes.

"WE CZECHS are normal people. We do not like fighting losing battles but prefer to adapt ourselves to the given situation." That is how an engineer in his late forties summed up the popular mood in Czechoslovakia.

A glance at Rude Pravo, the central party paper, tends to confirm the impression of a certain political normalisation. Instead of attacking dissident intellectuals and thundering against western "imperialist plots," Mr. Milos Jakes, Secretary of the Central Committee, fills four pages with a report to the plenum on the performance of agriculture and the food industry.

Both the personality of the speaker and the subject matter are pointers to just how much has changed in Czechoslovakia in the decade since 1969 when Dr. Gustav Husak, now both head of state and party leader, replaced Mr. Alexander Dubcek, the hero of the short-lived reforms of the "Prague Spring."

The same Mr. Jakes who in 1970-71 was in charge of purging almost half a million party members now has to deal with problems such as the unsatisfactory production of sugar-beet, fodder and potatoes.

With food imports a heavy drain on meagre foreign exchange resources, the leadership publicly committed itself at the last party congress, in April 1978, to make the country self-sufficient in agriculture by 1980. But Mr. Jakes demolished any idea that agriculture might be thriving.

His candour, coupled with calls for greater efficiency, higher quality and meaningful material incentives indicates the seriousness with which the top leaders view the economic situation.

The energy and power sector, which is due to receive a third of total industrial investments during the current five-year plan, is also causing serious concern. The country, and above all industry, is beginning to recover from the repercussions of the winter power shortage.

It was caused primarily by difficulties in transporting coal from the North Bohemian coal mining areas to the eastern parts. Severe restrictions on the consumption of electricity were imposed, including the reduction of television transmissions to two and a half hours in the evening, a three-week closure of schools, and changes in working shifts.

Winter hazards dramatically illustrated the country's dependence on poor quality lignite, which is the base for 70 per cent of the output generated by thermal power stations. In all, coal-burning power plants account for 95 per cent of the electricity.

A sudden change in temperature, frost and snow produced frozen rails, bringing transport to a standstill. Worse still, railmen had no equipment to cope with the emergency and in the process of trying to get the frozen coal from the freight wagons they caused further serious damage. With no hope of increased Soviet oil deliveries (17m tons in 1977) and with nuclear power covering only at best 4 per cent of energy demand by 1980, the country has to rely on coal mined under increasingly difficult conditions and at an ever-growing cost.

"We have no resources apart from timber and the hands of our people." That is how the Prime Minister, Mr. Lubomir Strougal summed up the situa-

tion in a recent talk. Predictably he omitted to mention the delicate issue of uranium reserves shipped for processing to the Soviet Union.

The revolution in Iran poses a new threat to energy supplies. The Shah, who together with Empress Farah received honorary degrees from Prague's Charles University in August, 1977, as well as the highest Czechoslovak order (the White Lion: First Class with chain) approved a contract under which Czechoslovakia was to receive

overextended engineering industry are less and less competitive in world markets. That poses the question of how to acquire foreign exchange to pay not only for imported fuel and food, but also modern mining and industrial equipment. In striking contrast with neighbouring Poland, the Czechoslovak Government is extremely cautious in its foreign borrowing. The external debt is put at only \$2.3bn.

With Western bankers concerned about the level of some Comecon countries' indebtedness, Czechoslovakia finds itself in the curious position of being urged, for example, by the Austrian and British Trade Ministers this month, to borrow from Western banks or to tap the Euromarkets. The Finance Minister, Mr. Leopold Ler, merely replied that he would think about it.

His name is associated with the much discussed "complex experiment of effectiveness and control," introduced in January 1978 for a period of three years in some 150 plants with almost half a million employees. This experiment to raise efficiency and quality and to reduce production costs cannot succeed without the granting of real financial rewards both to enterprises and individuals, or without a transition to realistic prices in order to gauge the real export and production performance of industry.

How can one motivate people to achieve a better performance without opening the floodgates of criticism? That is the real question behind the experiment, timid as it is compared with the economic reforms in neighbouring Hungary. Yet as long as Dr. Husak's regime can produce bananas from Colombia, oranges from Cuba, and tinned fruit juice from Greece on the stalls, in addition to an erratic but on the whole adequate supply of basic foodstuffs, relative political stability is unlikely to be endangered by pressures from below.

On the whole, however, the atmosphere is curiously political, characterised not by sullen protest but by an admirable mastery of getting around the system.

Although exports increased by an unprecedented 35 per cent in the last three years, he said, growing raw material and fuel prices had eaten away the profits.

3.5bn cubic metres of natural gas a year between 1981 and 2001. It was even hoped that by the 1980s, Iran could cover almost a third of the demand for imported fuel.

Travelling through Bohemia, the visitor is struck by the ever present problem of air pollution and environmental damage caused not only by open cast mining but also by the antiquated plants with industrial equipment, on average 12 years old.

The fact that Czechoslovakia before the war was already a highly industrialised country and that little damage was done to its industry during the Second World War, emerges now as a relative disadvantage. It may rank as number three in per-capita steel output in the world, but the products of its large and

overextended engineering industry are less and less competitive in world markets.

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Atom waste inquiry opens

BY JONATHAN CARR IN BONN

A SIX-DAY hearing of international nuclear energy experts began in Hanover, the capital of Lower Saxony, yesterday. The outcome will be of importance for West Germany's own atomic energy plans.

At issue is whether burial in underground salt deposits is a suitable way of disposing of radioactive waste. The question is of immediate relevance since it is proposed to develop a nuclear fuel services centre at

Corleben, Lower Saxony, and bury nuclear waste in the salt beneath it.

This project has not yet been given final approval by the State government and the result of the hearing is likely to influence its decision.

More than 60 experts from among other countries, the U.S., Britain, Sweden, Denmark and West Germany are taking part in the discussions which are being held in public.



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* The number of accounts increased and there was also an increase in customer demand for loans and advances. Deposits from the public registered further growth.

* The Bank's fourth London branch to be located at Gants Hill, Ilford is about to open. This is the Bank's second high street branch following the success of the Golders Green branch opened at the end of 1975.

* Much effort was devoted to furthering the development of Anglo-Israel trade. Additional services have been offered to those engaged in trade and in the exchange of technology and know-how between the two countries.

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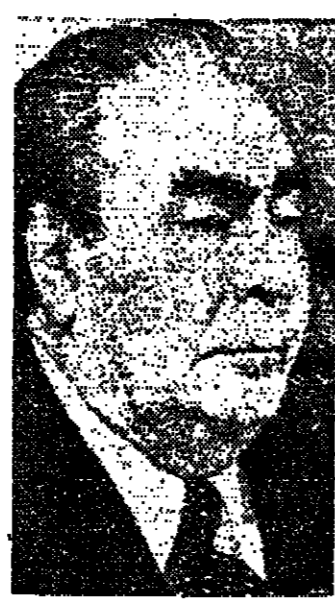
EUROPEAN NEWS

Eanes rejects Mota Pinto's offer to quit

BY JIMMY BURNS IN LISBON

PORTUGAL'S four-month-old... Eanes rejects Mota Pinto's offer to quit... He had reaffirmed his support for the Government...

will hold the key to its fate... Clearly, President Eanes has reason to feel that the risk implied in his latest "political solution" is worth taking.



New doubt on health of Brezhnev

By David Satter in Moscow

RENEWED speculation about the health of President Leonid Brezhnev surfaced yesterday with the abrupt cancellation by the Soviet Union of the visit of M. Valery Giscard d'Estaing, the French President.

FORD'S MIXED FORTUNES IN SPAIN AND PORTUGAL

Unrest shuts Fiesta plant again

BY ROBERT GRAHAM IN MADRID

FORD YESTERDAY closed its Almusafes plant near Valencia, after mounting labour unrest, and began an indefinite lock-out. In answer, Ford workers held violent protest demonstrations, and clashed with riot police in Valencia.

work conditions, including restrictions on Saturday work. This led to strikes on two Saturdays in January. In mid-February, Ford carried out a three-day lock-out and suspended negotiations. The company also applied to the Labour Ministry for a "laudo" — a move equivalent to calling in Labour Ministry arbitration.

gathered evidence of harassment and violence by 13 persons. Eight of these were sacked on Monday and a further five on Tuesday. But five of the sacked men were on the union negotiating committee and two were the heads of CCOO and a more radical union, CSUT.

tional auto-manufacturers in Spain, and point to problems at both Citroen and Renault in negotiating wage agreements. At Chrysler in Madrid, a stoppage occurred on Tuesday after an overseer allegedly beat up a worker and fired shots in the air.

This is the second lock-out in six weeks at Almusafes, which produces the Fiesta. The deteriorating labour climate at Ford is fast becoming Spain's most bitter industrial dispute since unions were legalised in April 1977.

At the heart of the conflict is a struggle by management to ensure a tranquil labour force, and by the unions to establish a position of bargaining strength. The lock-out would continue until the unions gave signs of willingness to let the plant operate normally, Ford said.

Mr. Patrick Byrne, chairman of Ford Lusitania, said the new export programme would mean an increase in the Azambuja work force from 240 to 1,107. The project is expected to help Portugal's ailing motor industry in its attempts to adapt to the country's future membership of the EEC.

Portuguese Government officials and Ford Europe are continuing discussions on a proposal to set up a new \$1bn assembly plant in Portugal. The proposal centres on the development of a site at the industrial complex of Sines, near Lisbon.

Dutch payments gap less than expected

BY CHARLES BATCHELOR IN AMSTERDAM

HOLLAND RECORDED a much lower balance of payments over current account deficit in 1978 than suggested by the most pessimistic estimates, thanks to a late revision of the figures. The deficit was Fl 2.4bn (\$580m), Mr. Frans Andriessen, the Finance Minister, said in a note to Parliament.

years and followed a surplus of Fl 1.4bn (\$340m) (revised from an earlier figure of Fl 1.1bn) the year before. A new estimate for the balance of payments position this year will be included in the central economic plan due to be made public later, this year.

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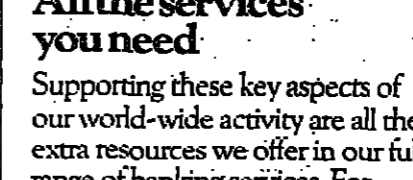
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studies, interpretation of technical data, empathy with the non-banking experts involved in the project — our level of involvement in this complex aspect of finance is only matched by the skills we can bring to bear. Among major projects in which we have been involved are a large shipyard development in the Republic of Korea, an iron ore mine in Brazil and an aluminium smelter in Dubai.

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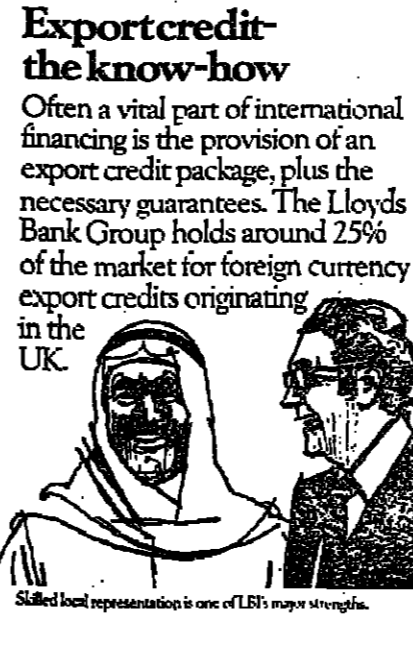
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Oslo confirms full support for shipping industry

BY IAN HARGREAVES

THE NORWEGIAN Guarantee Institute for ships and oil rigs is renegotiating the terms of several agreements with banks and shipowners, but this does not indicate an unwillingness to continue supporting its shipping industry.

This assurance was given in London yesterday by Mr. Hallvard Bakke, the Norwegian Trade and Shipping Minister. He said the results of each negotiation would depend upon the willingness of all parties to make compromises about their share of financial exposure.

Where such compromises are not forthcoming, the institute, which was set up by the Government in 1975, had the right to withdraw and take the

necessary financial losses. So far such losses totalled less than \$0.5m.

The Government's commitment to bolstering its shipowners was placed in doubt last year during the renegotiation of one of the institute's largest guarantees for the troubled Reksten tanker group, for which Hambros Bank of London is a major creditor.

Mr. Bakke said that the Norwegian Parliament's recent acceptance of an extension to the guarantee system, whereby financially secure shipowners can buy secondhand ships with a 30 per cent Government-backed credit, was evidence of long-term commitment.

The Government has earmarked \$30m of the \$100m still remaining in the institute's

funds to support this scheme, which has not so far been taken up by any owner.

Mr. Bakke, whose left-wing politics have made him a subject of deep suspicion among Norwegian shipowners, said the Government remained absolutely committed to the shipping industry, which provided 6 per cent of the country's gross national product even in a depressed year like 1978.

He made it clear, however, that the Government will continue to resist demands for freedom in transferring ships to cheaper foreign flags.

The Government wanted Norwegian companies to be simple in structure and clearly based in Norway in order to strengthen national control.

Indian exports improve

By K. K. Sharma in New Delhi

INDIA HAS reversed a trend of falling exports, according to the Commerce Ministry which reports that exports for the 10-month period April 1978-January 1979 rose by about 3 per cent over the same period the previous year.

Provisional figures put exports for the period at 44.16bn rupees (£2.2bn). This compares with 53.74bn rupees for the whole of 1977-78, which represented a rise of 4.4 per cent over the previous year.

Until December, exports were running at about 1 per cent below the previous year, due mainly to fluctuations in rupee-dollar exchange rate, the fall in world commodity prices and the Government's policy of limiting exports of goods in short supply in India.

The improved performance—although below the target rate of 7 per cent—is mainly due to higher exports of engineering goods, gems and jewellery and leather products.

But, imports are about 23 per cent higher than in 1977-78 and, the trade deficit at the current year is estimated at well over 10bn rupees. This is not causing alarm since foreign exchange reserves currently stand at around the £3.4bn level and are able to cope with the trade gap.

A 27-member delegation of Western European businessmen has completed a tour of India during which it met officials from some 300 Indian electronics concerns to examine the possibility of setting up joint ventures.

GATT TALKS

Inching towards agreement

BY BRIJ KHINDARIA IN GENEVA

A TOKYO ROUND package which will have an important influence on world trade has begun to take shape as intensive negotiations continue in Geneva with the aim of reaching final agreement by mid-April.

Some important points of difference remain among the industrialised countries as well as between these countries and the developing nations, making it unlikely that the details will be concluded before the end of this year.

However, participants in the negotiations think that the substantive accords needed to begin the process of approval by the U.S. Congress and by the European Community's member governments will be completed in the coming weeks.

Reactions to the package as outlined so far range from the cautious optimism of industrialised countries—who say that the world's trading system will be vastly improved if the package can be made to work—to the pessimism of several developing countries who feel that they have failed to win big enough steps towards a new international economic order better geared to their needs.

The pessimism of developing countries now derives largely from their belief that they may not be able to stem the tide of trade protectionism in industrialised countries arising from unemployment pressures due to energy supply problems.

The optimism of developed countries comes from the hope that greater transparency in the system of international trade and closer consultation will help build a fairer balance of interests, allowing poorer nations to export without crippling already ailing industrial sectors, such as textiles, shoes and steel, in the

developed countries, while ensuring steady supplies of primary raw materials.

The main new features of the Tokyo Round are highlighted by a series of codes of conduct concerning the use of non-tariff barriers to trade, including resort to export sub-

suppliers by government or other public purchasing entities. It would also require more transparency of laws, regulations and procedures concerning government-financed purchases.

The customs valuation code is designed to obtain a "fair, uniform and neutral system for the

tainty remains about its immediate inclusion in the package.

A separate set of agreements will lay down the industrial tariff cuts to be offered to one participant by the Tokyo Round participants in step-by-step reductions over an eight-year period.

Agricultural trade has been treated as a separate sector on insistence of the Common Market and includes accords on a framework for future cooperation as well as on cereals, dairy products and beef.

Trade in agricultural products would also be affected by the codes on subsidies and countervailing duties, technical barriers to trade, and safeguards.

The entire Tokyo Round trade package will be brought together in a final act yet to be drafted. This will probably state the Round's overall objectives and commit signatory nations to examine and, if they wish, adhere to the various separate agreements concerning industrial tariff cuts and non-tariff barriers to trade and agricultural trade.

This final act, which would declare the signatory governments' willingness to join a new General Agreement on Tariffs and Trade (GATT), should be ready for signature by mid-April, and would govern international trade relations for the next 10 to 15 years. But negotiations on the actual articles of the individual accords and codes are likely to continue well into this year.

The final ratification procedure by participating governments is expected to begin only after it becomes clear that the package is likely to be approved by the U.S. Congress and Common Market governments. Under the most optimistic scenario the new GATT would come into force in 1980.

MR. WILHELM Haferkamp, the vice-president of the EEC, has expressed concern over the need for immediate and visible action by Japan on lowering barriers to im-

ports from the EEC, Richard C. Hanson writes from Tokyo. In three days of talks in Tokyo with Japanese leaders, Mr. Haferkamp did not win any such concessions.

valuation of goods for customs purposes that precludes the use of arbitrary or fictitious customs values."

The aims of the agreement on import licensing procedures are to simplify such procedures and to make them more open so that they do not act as barriers for foreign exporters.

A major code on the use of safeguard measures to protect home industries against disruption from cheaper imports, mainly from developing countries, is still bogged down in dispute, and some uncer-

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Hovercraft outlook 'glittering'

BY LYNTON McLAIN

THE GREATEST demand for hovercraft in the 1980s is expected to come from developing nations, Mr. Roy McLeavy, vice editor of *Survey*, *China* and *Timbers*, says in a foreword to the latest edition published day.

Hovercraft are likely to be used in Africa, Central and South America, on Pacific lands and in China. These markets offered "glittering prospects" for the industry, with equipment used as amphibious trucks, freighters, light transports, barges, excavators and drill platforms, rice harvesters, cattle wagons and mobile hospitals.

Mr. McLeavy says that the low level of skill needed to build hovercraft make them ideal for local construction. His could provide work with international funding programmes.

The experience of British hovercraft manufacturers is still

unmatched in the world, but the drive to sell the technology to Third World nations "will stir up stiff competition." The U.S., Canada, France, China and the Soviet Union have designed and built their own craft aimed at developing nations.

But, the British Government is still "indifferent to the hovercraft." Mr. McLeavy says this is the result of the failure of a number of sceptics in "key Ministerial positions" to recognise the hovercraft as a high dividend investment, instead of an area of Government spending.

Member nations of the North Atlantic Treaty Organisation in Europe have a greater need than ever for versatile amphibious vehicles, he says. Existing craft are either obsolete or inadequate. But the Ministry of Defence had failed to encourage new designs.

Meanwhile the Soviet Union has developed hovercraft for

amphibious military roles, in a move which "adds considerably to the mobility, flexibility and strike power of the Warsaw Pact forces in the Baltic."

The Soviet Navy unveiled last year the Ivan Rogov, its largest amphibious landing ship, designed to carry three GUS assault hovercraft. The GUS can land a fully-armed platoon on a beach at 60 miles an hour.

The Soviet Aist, the only other military hovercraft in the world now in large-scale production, carries main battle tanks over seas, bogs and rivers.

The British Government, on the other hand, has no policy on military hovercraft development, Mr. McLeavy says.

Soviet energy boost

BY DAVID SATTER IN MOSCOW

THE SOVIET UNION last year partly cut its trade deficit with West Germany, its principal "western trading partner," as Soviet exports rose almost 20 per cent on the strength of increased deliveries of oil products and natural gas.

Figures released by the West German embassy show that West German imports from the Soviet Union in 1978 had a value of M 5.4bn (£1.4bn) a 19 per cent increase over the value of Soviet exports in 1977 which was M 4.5 bn.

The increase was almost wholly accounted for by the 37 per cent rise in the value of Soviet deliveries of fuel oil, lubricating oil and natural gas. At the same time, the value of West German exports to the

Soviet Union fell 2.3 per cent to DM 6.3bn in 1978 from DM 6.45bn in 1977. This was the second year in a row that West German exports to the Soviet Union showed a slight decline.

Businessmen in West Germany foresee little improvement this year in exports to the Soviet Union of such large items as machinery and industrial equipment because of a lack of large orders last year.

Soviet deliveries of raw materials, however, should increase. The Soviets delivered some 6bn cubic metres of natural gas to West Germany in 1978, and this is expected to increase to 7bn cubic metres this year and to between 9.5bn and 10bn cubic metres in 1980.

Andes Pact engine deal

BY KIM FUAD IN CARACAS

THE RIVALRY between Ford and Renault for the manufacture of a six-cylinder engine in Venezuela and Bolivia under the Andes Pact automotive programme is ticking away again, with a final decision expected in about 90 days, according to Venezuelan Development Ministry officials.

The two companies simultaneously presented new tenders this week in Caracas and La Paz for manufacture 100,000 engines early—105,000 in Venezuela and the rest in Bolivia. It was the second round of bidding since last year when General Motors was assigned the first of six-cylinder engines called for in the regional pact which also includes Colombia, Ecuador and Peru.

The bidding became controversial last July when Venezuela announced that General Motors had won the two thirds, but then reversed the decision. Finally, in October, GM was awarded the first engine and a new round of bidding opened for the second.

In February, Venezuela and

Bolivia issued stringent new requirements for the second round of bidding. These included demands that the winner export 60,000 units outside the five-nation economic bloc and provide technology free of charge as well as other advantages. Many of the demands reflected incentives that General Motors had included in its successful bid for the first engine.

Industry observers say that Renault holds an advantage over Ford in the bidding since it has an all-aluminium engine which has performed successfully in European markets since 1975. Ford's engine is still on the drawing boards, and, while it appears to be more versatile than Renault's, it will not enter the market until 1981.

Ford, however, has strong leverage because of its size as the major automobile maker in Venezuela with around 40 per cent of the over 182,000 units produced here last year. Moreover, many Venezuelan technicians view U.S. technology as better suited to local requirements.

UK clothing sales drive

BY MAURICE SAMUELSON

BRITAIN'S CLOTHING industry earned £725m in exports last year and is confident of achieving £1bn by the end of 1980, Mr. Hans Jacoby, chairman of the Clothing Export Council, said yesterday.

Speaking on the eve of next week's London fashion week, he said the industry was "alive and kicking."

If the UK economy permitted, manufacturers would have a bullish future for the next 10 years, with clothing exports reaching 20-25 per cent of domestic production, or 6-10 per cent over the present export ratio.

ing the popularity of British textiles and designs, the level of the pound, and competitive wages and prices.

In addition, whatever the faults of the Multi Fibre Agreement regulating the international textile market, it had given the UK industry protection at home against unfair competition, enabling it to plan and invest more confidently.

Boeing 757 go-ahead

Full production will now start on the new Boeing 757 aircraft, the Seattle aircraft manufacturer announced following Eastern Airlines' formal signing of a contract last week to buy 21 of the jets. David Buchanan writes. The 757 will be powered by Rolls Royce engines, which are an advanced version of the RB-211 engines already used on the Lockheed L-1011 aircraft.

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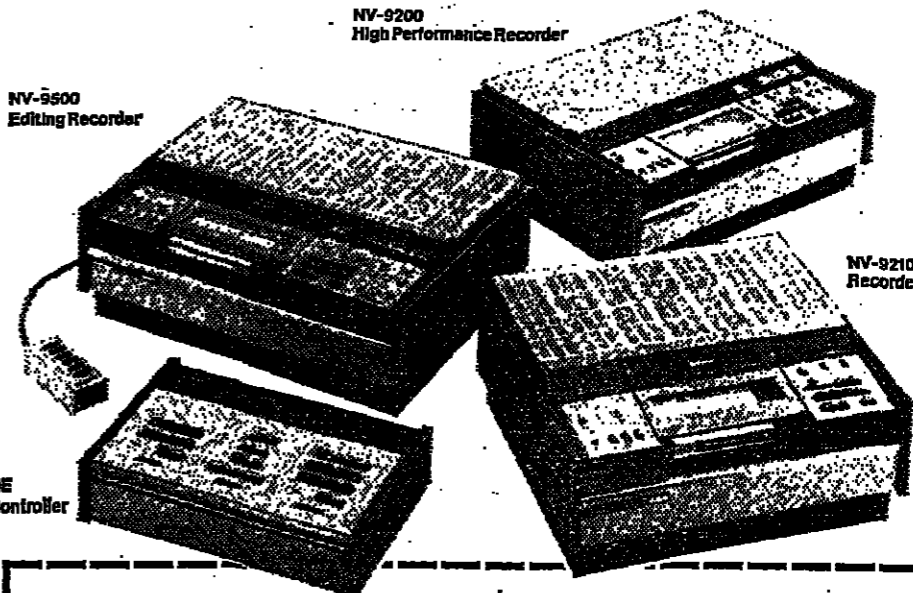
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UK word processors 'lagging behind'

BY JOHN LLOYD

THE National Enterprise Board should encourage a foreign-owned multinational to establish a plant in the UK to manufacture word processors—electronic typewriters combined with computers—to compete with British companies.

This is one of the recommendations of a report by the office machinery sector working party of the National Economic Development Council, published today.

The report says that the UK office machinery industry continues to deteriorate relative to its major competitors, and that "manufacturers have, with a few notable exceptions, not so far successfully switched to electronic-based product lines where the market growth is fastest."

In another report from the NEDC published today the automation and instrumentation

sector working party also stresses that moves from lower to higher technology products must be continued, and quickened, though it notes that the industry is relatively well placed, with a positive trade balance in 1977 of £233m.

In contrast, the trade balance in office machinery shows a deficit of £190m in 1977, up from £165m in 1976 and £49m in 1975.

The office equipment report says that future success in the office machinery market is "inextricably bound up" with the future of UK electronics components and computer manufacturers, because of the progressive incorporation of electronics into office machinery.

"That trend makes all the more disturbing the trade deficit of nearly £200m in 1977 for the more broadly defined

category of office equipment that takes in computers and computer peripherals."

The report is a sombre one for the three major product groups studied—photocopying equipment; cash registers, facsimile transmission microfilm and mailroom equipment; and automated office products.

The report says that the three new products launched by the copier industry in 1978 were all at the "high" end of the market. "The UK sector's position remains vulnerable to continued heavy imports at the 'low end' of the market."

The report on automation and instrumentation is more buoyant, though it says that there is a shortage of skilled labour amounting at times to 30 per cent of requirement, and that, in many products, world market opportunities have not been taken up.

should be with the assistance of the Government.

On automated office products, the report notes that only 5 per cent of word processors now in use in the UK were manufactured in Britain. The Government should become closely involved in the sector, both by encouraging a large multinational plant through the NEB, and also act as "a catalyst for change and development, working closely with industry to specify needs and, as appropriate, application areas and possible markets."

The report on automation and instrumentation is more buoyant, though it says that there is a shortage of skilled labour amounting at times to 30 per cent of requirement, and that, in many products, world market opportunities have not been taken up.

Multinational activity in this sector is very high—foreign ownership is as high as 65 per cent in some sectors—but where UK companies are not linked to multinationals, they are at a competitive disadvantage.

"If the UK industry generally is slow in adopting new micro-electronic applications, the automation and instrumentation sector will lack a firm home market base for new products, with the result that it could miss out on new export opportunities and subsequently be overtaken even in the home market by more advanced products developed by overseas competitors for their own home markets."

Army of diggers cry for a patch of soil

By Christopher Parkes

EVEN THOUGH the price of fresh vegetables has tumbled the excessive levels of the drought-stricken 1975 and 1976 growing seasons, Britons are still clamouring for a chance to get their spades into a little patch of land they can call their own.

The conservationist group Friends of the Earth claims that there are still more than 120,000 people on waiting lists for local council allotments.

At the same time, the group estimates, there are some 220,000 acres of derelict and despoiled land lying idle in Britain and a further 55,000 acres unused in Scotland and Wales.

In an attempt to bring some of this land into production FOE has just published an "allotments campaign guide" for individuals and groups interested in persuading the owners of these waste acres to allow them to be salvaged by volunteer armies of diggers and hoers.

The group also has called for a government survey of all waste land, and they want local authorities to be empowered to licence temporary allotments on any land lying idle for five years or more.

The Manpower Services Commission should be instructed to start land reclamation and authorities should be ordered to clear their allotment waiting lists by reclaiming waste acres and handing them over to the public, the group says.

Even though vegetable prices have come down from recent peaks, national spending on fruit and vegetables is still £1.45bn more than it was seven years ago, the group says and a family allotment could cut shopping bills for fresh produce by as much as £30 a year.

RESTRICTIVE PRACTICES

Reviewers urge stronger, more flexible law

BY PAUL TAYLOR

THE THREAD running through the recommendations in the Government's Green Paper on restrictive trade practices policy, published yesterday, is that existing competition law should be strengthened but made more selective and flexible.

The review body, comprising senior civil servants and economists from government departments, which prepared the Green Paper, says that existing legislation has proved effective in removing restrictive agreements in relation to goods and has contributed to improved industrial efficiency.

However, it argues that there are some grounds for criticism: in particular, the legislation is too inflexible and so may deter or prevent both "insignificant and significant but desirable" agreements. The major thrust of the Paper is that flexibility should be increased, mainly by broadening the discretionary powers of the Director General of Fair Trading; that the means of enforcement should be strengthened by the introduction of discretionary fines for failure to register agreements and by making collusive tendering a criminal offence.

The review body rejects the idea of a fundamental change in the approach to restrictive trade practices to bring UK legislation more in line with that in the European Community.

To change the basis from specific restrictions to the "effects based" system—a general system based on the control of arrangements and agreements which have the effect of restricting competition—would "result in upheaval and cost to industry" and it was unlikely that the benefits would outweigh the disadvantages.

However, a much wider role for the Monopolies and Mergers Commission is suggested to control anti-competitive practices which are not covered by present law.

"The major changes in the law needed to achieve the general objectives and set out in the Green Paper are:

agreements with the director general of Fair Trading given discretion not to proceed against insignificant cases.

● Giving the director general power and discretion to approve cases without taking them before the Restrictive Practices Court. This, it is argued, would improve flexibility.

● Powers to prevent the continued operation of a undesirable agreement pending a full court hearing either by amending the existing law or by giving the director general the power to make orders.

● The introduction of discretionary fines for failure to register registrable agreements.

● Giving the director general power to refer certain non-registrable agreements, arrangements and practices adversely affecting competition to the Monopolies and Mergers Commission for full investigation or to accept an undertaking from those involved that they will stop the practice, even where no statutory monopoly exists.

● Giving the Secretary of State for Prices and Consumer Protection back the power to act on a Commission report.

Criminality

● The introduction of a ban on defined agreements which have been found to be against the public interest, for example, collusive agreements (which the reviewers recommend should be made illegal) and the power to prohibit other forms of agreements.

The Green Paper says these measures would give "more coherent" controls and adds that the relationship between the Office of Fair Trading, the Monopolies and Mergers Commission and the Price Commission also will have to be examined.

On the controversial question of making some infringements criminal offences, the Paper says that because of the "growing evidence" of evasion relating to collusive tendering, and because of the fraudulent nature of the practice, criminal charges should lie.

Bid to delay Coal Board Belvoir plan inquiry

BY JOHN LLOYD

OBJECTORS to the National Coal Board's plans to develop a 10m tonnes a year mining complex in the Vale of Belvoir in north-east Leicestershire want the inquiry into the project put off for at least a year.

The preliminary stage of the inquiry, which will set the agenda for the main proceedings later this year, begins on May 8.

The alliance of anti-Belvoir groups, made up of the National Farmers Union, the Vale of Belvoir Protection Group and the Vale of Belvoir Parish Councils Committee, say that the inquiry should wait until the Commission on Energy and

the Environment, chaired by Lord Flowers, has reported in about two-years time.

In a letter to Mr. Peter Shore, the Environment Secretary, they say that the inquiry decision would have to be made before the Coal Board case could be tested against the wider criteria laid down by the commission and might well conflict with them.

"Surely it is a matter almost of common sense not to proceed with this inquiry at this juncture, but for those most closely concerned to direct their energies to ensuring that the commission is properly informed on all relevant matters without delay," says the letter.

Low pay deters recruits, chairman of Bar says

LOW PAY among barristers, one-third of whom earn less than £4,000 a year, has led to a drop in recruits to the Bar, according to evidence to the Royal Commission on Legal Services by Mr. David Hirst, QC, chairman of the Bar. There was an urgent need for a big rise in fees for publicly funded criminal work, he said.

A survey among barristers ad shown that one-quarter,

mostly the recently called, earned less than £3,100 a year.

Mr. Hirst also urged the Commission to consider that any major change in the work pattern of the legal profession, such as the suggested extension to solicitors of rights of audience in Crown Courts, might cause "a stampede from the Bar, certainly from the younger members." He had seen no public demand for such a change.

Food group 'flouted obligations'

INTERNATIONAL STORES, the food retailing group, deliberately flouted its obligations under a lease by closing an unprofitable supermarket and leaving it empty, a High Court judge said yesterday.

The company said it was a "correct commercial decision." Mr. Justice Slade commented: "If this is the standard by which they judge the correctness of their commercial decisions, I have some sympathy with the persons who find themselves doing business with them."

The judge "reluctantly declined" to grant an injunction in a pending action by Braddon Towers, a subsidiary of Allied London Properties requiring International Stores to re-open as a supermarket at Vincent Park Estate shopping centre, Sittingbourne, Kent, owned by Braddon Towers.

The judge said International Stores had committed a serious breach of covenant, without any apparent regard for Braddon Towers, or the occupants of the other shops.

He said the law did not allow the court to compel someone to carry on a business.

He gave directions, however, for an early trial of the action, in which Braddon Towers will claim damages against International Stores.

Fire losses soar after Bolton blaze

BY ERIC SHORT

ONE FIRE, which caused £10m worth of damage was the chief reason for fire damage costs in February soaring to £33.8m, according to figures released yesterday by the British Insurance Association.

The £10m disaster occurred in mid-February at the filter manufacturing plant of Automotive Products in Bolton, Lancashire. The factory, a total write-off, was the largest single item of fire damage since the Flixborough explosion in June 1976.

February's figures were also boosted by three other £1m-plus fires, including one at Waring and Gillow's furniture store in

the centre of Reading, costing nearly £2m.

Although last month's damage costs were only £3.5m up on the previous month, they were nearly £10m above those for February last year. Fire damage costs have now exceeded the £30m mark in each month from September, with the exception of December. This level had previously only been reached during the firemen's strike period and the Flixborough disaster.

Altogether there were nine fires where damage exceeded £250,000 and a further 76 costing more than £35,000 each,

Plant managers warned of oil tank danger

THE HEALTH and Safety Executive has started a campaign to warn factory managers of the dangers of heavy fuel oil tanks exploding. The warning follows an investigation by the executive into a series of blasts and fires.

The investigators found most of the explosions were caused by overheating and the build-up of dangerous concentrations of oil vapour within the tanks. The

main reason for this was that thermostats in the tanks were not immersed in the oil and unable to control temperatures properly.

The executive said yesterday that factory managers needed to check that tank heaters and thermostats were always immersed in oil. Extra precautions had to be taken during cold weather or when there was any likelihood of oil supplies being interrupted.

Lucas review wins award

LUCAS INDUSTRIES' 1978 annual review has won the major companies' section of the annual employee reports competition organised by Accountancy Age magazine and the Industrial Society.

The Mobile Training Cup was presented to Mr. James Shield, director and treasurer of Lucas Industries, in London.

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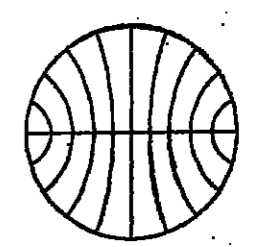
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Technical Page

EDITED BY ARTHUR BENNETT AND TED SCHOETERS

METALWORKING

Pushes metal into shape

ONE OF the oldest names in the UK bicycle industry is pioneering an advanced method of metal forming. The company, Haden Bros., which, for well over a century, has been making cycle frame components at its Birmingham factory.

Rubber bulge-forming is the name of the process which depends on the controlled deformation of a specially assisted grade of rubber under easy pressure to cold-form 'rel tubing' into highly complex shapes.

Based on the operation of a 60-ton hydraulic press, the process consists in inserting a rubber core into the steel tube blank and placing this assembly in a die machined out to the exact shape of the desired component.

The die is fixed to the bed of the hydraulic press which operates to drive two rams from above and below, applying high pressures to the rubber core and the steel tube from both ends. The effect of this is to compress tube and core and drive them outwards into the shape of the die. When this is done and the formed component is released, the rubber core returns to its original shape ready for use on the next blank.

Haden says the crux of the process is the design of the forming tool and it has carried out extensive investigations on determining the length of the

original tubular blank required for any particular component, which has naturally entailed detailed studies of the limits on the amount of deformation that can be achieved.

From the point of view of cost, it is desirable to arrive at optimum deformation with the minimum amount of raw material.

The method is competing with casting, or hot metal stamping followed by extensive machining, which, Haden describes as being slower, less accurate and more expensive than bulge forming.

On such equipment, where speed of throughput is very important, a crucial question was the choice of safety system and the designers of the process decided to use the Super-guard unit first presented to the metalworking industries in mid-1978. The reason for the selection was the fact that this safety unit, made by P. J. Hare, cuts unproductive time to a minimum while giving an extremely high margin of safety. It has two lightwight, transparent moving shutters driven by toothed belts and controlled by a pneumatic cylinder. The shutters have cushioned leading edges so that if an operator's hand is caught, there is no danger of injury. The press will not cycle if this happens.

Interlinking the pneumatic control cycle for the guard with the electric controller for the press achieves this.

When the operator has placed a new workpiece in the press and the guard is closing as he withdraws his hand to pick up another blank, the natural path for this hand movement passes over the horizontal bar which actuates the press. There is thus no break in the natural rhythm of his work, and touching the control bar instructs the press to proceed, but when the guard shutters have closed.

Haden Bros., West Ley Street, Birmingham B9 4ES. 021-773 0481. P. J. Hare, Wroughton, Bristol BS18 7NL. 0934 862608.

TELEVISION

Little screens grow

THERE ARE signs that interest and competition in large-screen television, generally provided by means of a projection system, is growing on the UK market.

National Panasonic is offering its five-foot "CinemaVision" (shown here) which has the particular advantage of being an integrated unit, instead of having projection and screen separated by a distance of several feet.

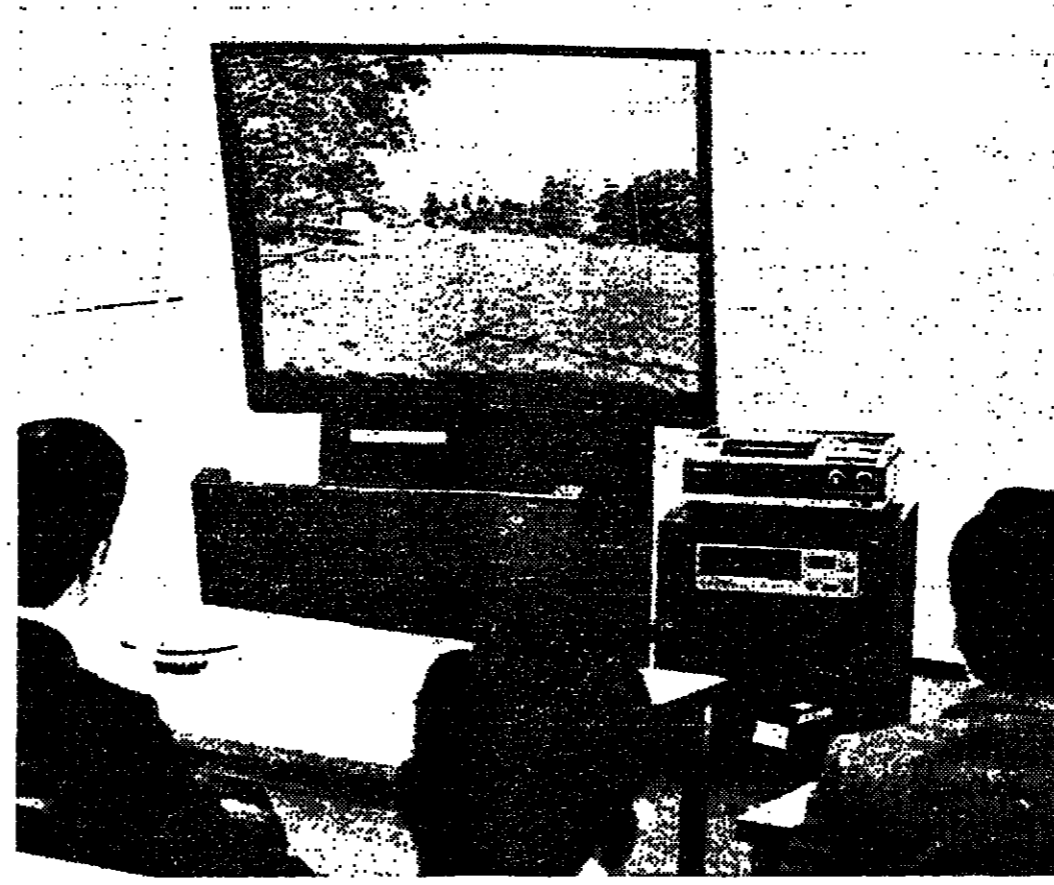
Daryan and Company is introducing a 54-in parabolic screen system and in April Mitsubishi is to launch a 50 in screen receiver.

National Panasonic's design provides high clarity pictures from broadcasts or recordings, visible from distances up to 60 ft.

Designers of the system say there is no problem when the equipment has to be moved, nor from people moving between projector and screen.

Either PAL or modified NTSC standards are accepted so that any organisation or individual using an industrial U-matic format recorder, with friends or professional contacts in North America, can use video recordings without complex or expensive conversion kits.

Theatre TV, offered by Daryan, is a projection system



contrast are automatically compensated as lighting levels change, so avoiding harsh or uncomfortably bright images in darker room conditions.

The television receiver/projector console supported on a cabinet base, has a three-element projection lens and a dual-speaker arrangement which enables focused sound to be reflected directly from the screen.

Two auxiliary switches are incorporated in the console for the control of room lighting, associated appliances and other electrical devices.

AUTOMATION

Big engines monitored

FROUDE ENGINEERING has ordered automated engine test equipment for the Spurrier Works of Leyland Vehicles.

This contract, placed with GEC Elliott Process Automation, covers the supply of two GEC 4070 computers. One of these will monitor and control six research and development engine test beds automatically, the other will be a central computer system which will have two-way communication with the test bed computer.

The central computer system will have facilities for the storage of engine test data on cartridge discs, analysis of test results, provision of hard copy test reports and graphical plotting of engine characteristics. This is a new installation and is the first multi-bed computer engine testing system for research and development supplied to British Leyland.

Use of computer-controlled engine testing permits more efficient working and an improved product as a result of better research and development testing.

The engines to be tested on the six test beds will be, typically, current and future designs for use in Leyland heavy goods vehicles and double-deck buses.

GEC-Elliott Process Automation will be responsible for the installation of the computers and commissioning of the system including the interface with the dynamometer controls. GEC-Elliott Process Automation, New Parks, Leicester LE3 1UF (0533 871331).

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COMPUTING

Link with Euronet

GSi UK, part of the largest computer services company in Europe, formerly CRC, has become the first "host" computer centre in Europe on the IPSS packet switching service. UK users can now access databases running on the GSi service bureau computers at Slough, for the cost of a local phone call.

In order to become a European "host" centre, GSi has had to write its own special communications interfacing software compatible with the X25 protocol agreed by most telephone using countries. It has also installed an Interdata Model 32 front-end processor and designed and built in-house, special hardware interfaces.

At the same time, GSi UK has become the first service company to establish a link with the Euronet service shortly to go live, ready for testing. The company has also applied for a link with the UK Post Office packet-switched network. GSi (UK) 83 Clerkenwell Road, London, EC1R 5HP. 01-242 0747.

COMPONENTS

Ready-made hydraulics

SKF STEEL of Newport Pagnell has a new "hydraulics package," consisting of cylinder tubes, piston rods and eyebolts, all in compatible materials and produced to any degree of finish required by the hydraulics manufacturer.

Purpose of the scheme is to provide buyers with a facility whereby they may obtain all of their principal components from one source, with guaranteed compatibility and requiring the minimum of in-house machining.

Hydraulic cylinder tubes are offered in o.d. sizes from 60 mm to 230 mm and in lengths of up to eight metres. They are obtainable in hot or cold rolled steel, seamless or welded (DOM) and in any degree of finish from black tube to honed ready for assembly. Similarly, piston rods are supplied in any form from billet or bar or tube to the finished object, again in a choice of materials. The eyebolts, with built in bearings, are made in sizes to suit piston rod diameters from 25 to 100 mm and supplied either loose or welded to the rod. The

company will also produce "specials" to order.

Cylinder tube in the new grade SKF 280 has a minimum yield strength of 30.5 tsi and its welding and machining characteristics are in the same category as grade SKF 214, which is one of the bar materials recommended for hydraulic pistons. Standard honing produces tolerances of H11 and further special tolerances of H8 and H9 can be supplied to order.

DOM tubes, which offer even closer tolerances, are welded from strip and drawn over a mandrel and through a die. These offer a yield strength of some 38 tsi and they also are produced in a steel corresponding to SKF 214. Outer dimensions range from 30 mm to 230 mm, with a maximum wall thickness of 14.7 mm. Precision drawing brings the surface finish down to a level which is adequate for most applications, though higher specifications can be met on request.

SKF Steel, North Crawley Road, Newport Pagnell, Bucks.

ASSEMBLY

Parts put in their place

UP TO 30 operations per minute, with each operating cycle comprising eight movements, can be carried out by the latest automatic handling device produced by Ariel Automatic Feeders of Leicester.

The unit is designed to pick up and place small and medium-size components or assemblies into jigs, fixtures and machine tools. Functioning can be continuous or on a stop and start basis from a given input signal.

The various movements are powered by a vertical pneumatic cylinder providing an up and down stroke of 25 mm and a double acting pneumatic cylinder, built into the main body, providing a horizontal movement of up to 100 mm.

Users may select from mechanical pick-up heads with gripper fingers in either a horizontal or vertical position, vacuum lift or magnetic lift. Each of these can be custom designed to suit the type of component and application requirement. Control may be fully pneumatic or electro-pneumatic.

The standard unit moves in one direction but units can be provided with a rotary motion facility with angular travel up to 180 degrees.

Fuller details of the unit may be obtained from the maker at Ariel Works, Temple Road, Leicester LE5 4JG (0533-736541).

PROCESSING

Keeps it all moving

AVAILABLE in the UK from Heinrich Fringe of Bonn, is an immersible aerator for waste water processing.

The agitator ensures effective aeration and movement reaching dead spots of sludge which could exist with a surface system says UK distributor Environmental Engineering, 15 Melville Terrace, Stirling, Scotland (0786 63021).

Aerator is a combined pump, blower and dispenser. Units range from 4 hp to 40 hp and have a maximum air capacity

of 273 cfm (470 cubic metres an hour) or oxygen transfer of 150-250 lb an hour (70-120 kg/hr).

Installation of the immersible aerator is said to be simple and can be achieved without costs of removal of existing systems. These can then be used as stand-by equipment or utilised to match unprogrammed and exceptional treatment demands.

Only installation requirements, says the company, are for the air intake and mains electric supply.

ELECTRONICS

British tape unit

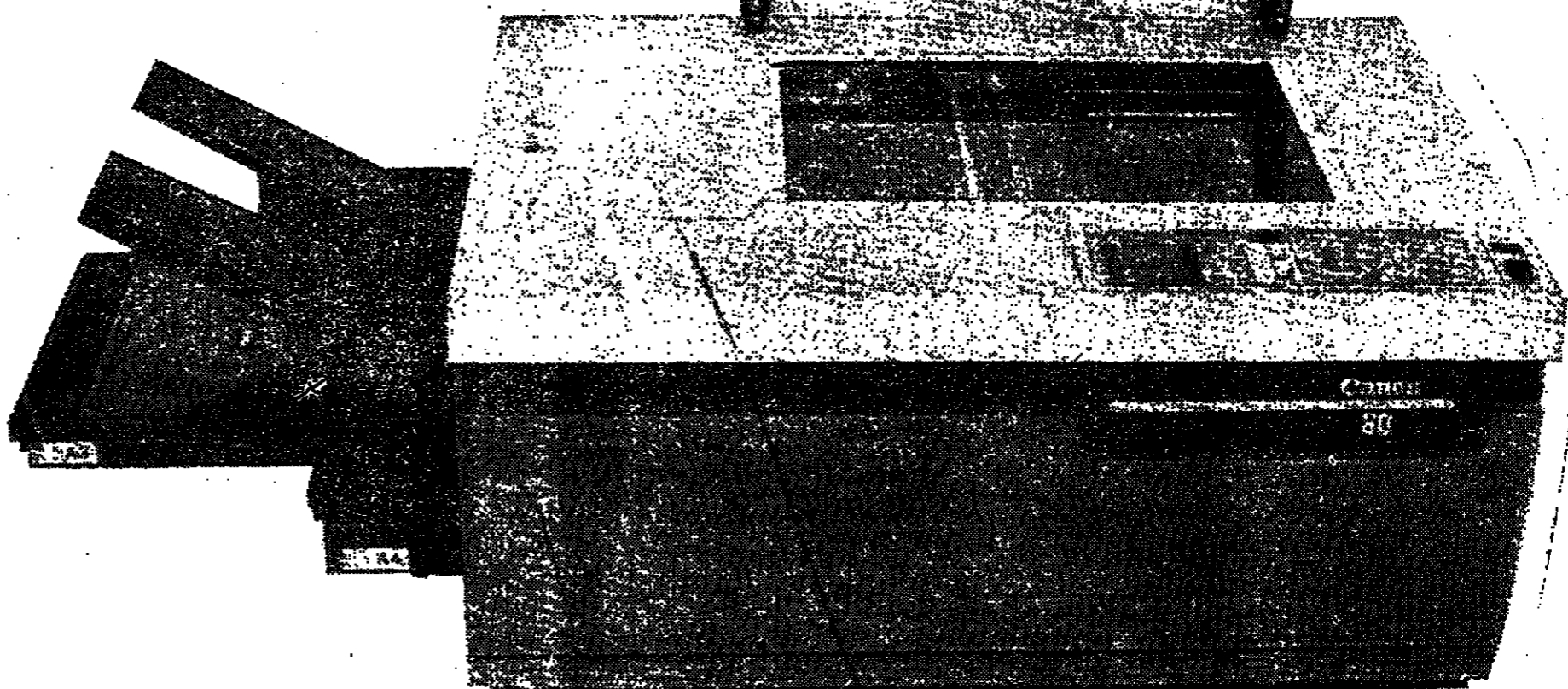
INTENDED for building into data recorders, instruments, office recorders and similar equipment, the C2000 tape transport mechanism is made in the UK by LGM Electronics 22, Station Approach, Fleet, Aldershot, Hants GU13 8QY (02514 28018).

Solenoids provide remote operation of the stop, start, rewind, fast forward and search functions.

Robustly constructed, the mechanism operates from 12 volts dc, has dimensions of 180 x 145 x 80 mm and weighs 1.25 kg.

Operational speed is 4.76 cms/sec in normal forward motion and 15 times faster during "fast wind." Separate motors are used for driving the capstan and for fast winding and a three digit mechanical counter indicates tape position.

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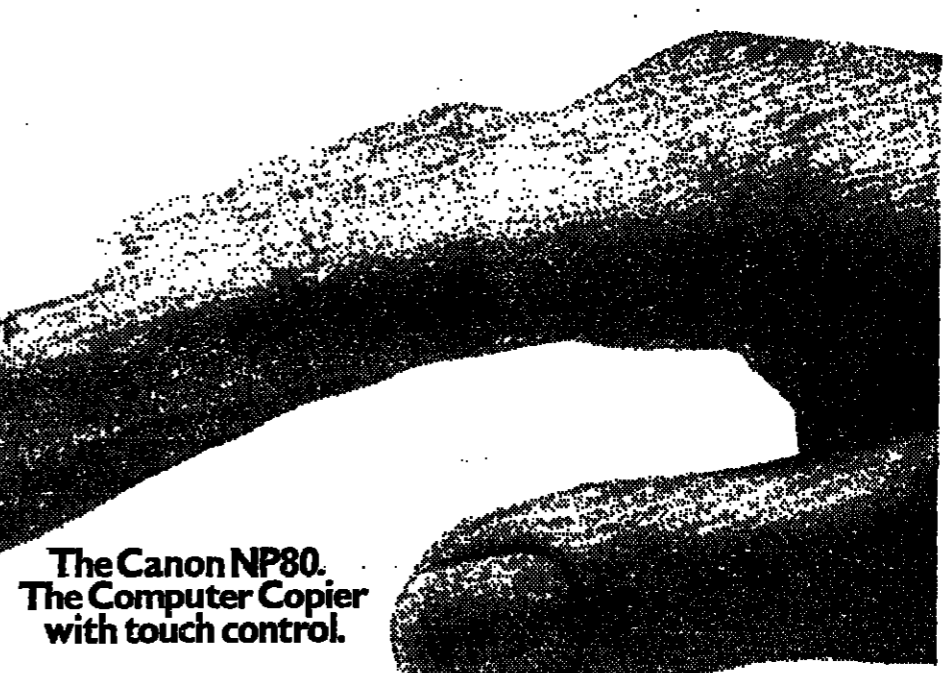
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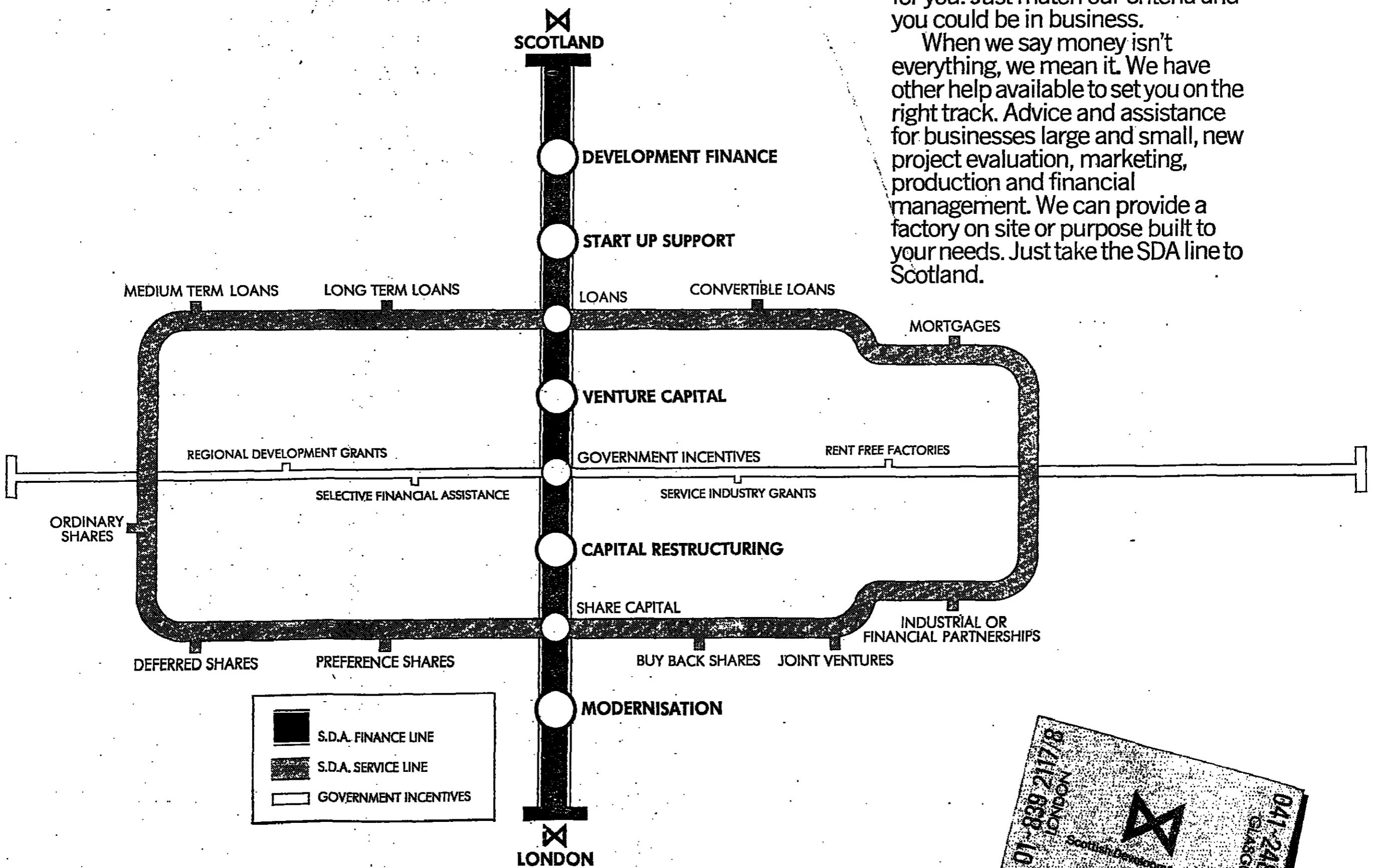
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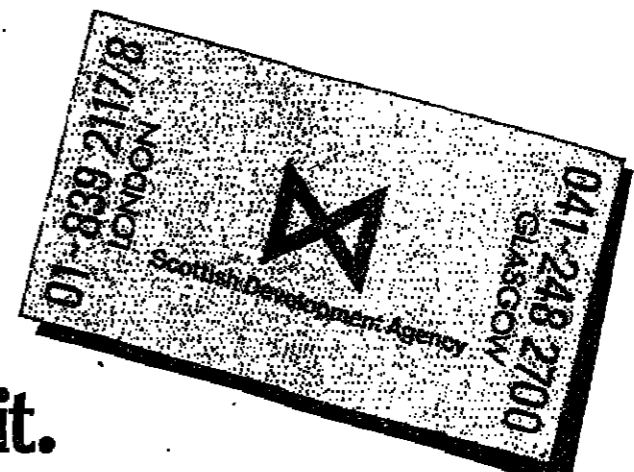
few sources of venture capital, putting equity and loan finance behind new products and advanced technology. Or it may be money to help develop the next stage of your company, to improve your capital structure—or modernise your plant.

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THE MARKETING SCENE

EDITED BY MICHAEL THOMPSON-NOEL

A lesson from von Clausewitz

BY MICHAEL THOMPSON-NOEL

IT WAS CARL VON Clausewitz, the well known brand manager, who said: "In such things as war, the errors which proceed from a spirit of benevolence are the worst." Later, he told the annual sales convention: "Power used at the right moment against the right adversary brings more power." Finally, in his famous address to the stockholders' meeting, he articulated one of the great laws of marketing: "Many assume that half efforts can be effective. A small jump is easier than a large one, but no one wishing to cross a wide ditch would cross half of it first."

Von Clausewitz, of course, was never a brand manager. He was a Prussian military strategist who in his treatise, *On War*, may be said to have distilled Napoleon into theory. On the other hand, the alleged links and relationships between marketing and war are such that in some quarters, at least, von Clausewitz is now held to be (at least half seriously) the first great marketing strategist.

It is true there are superficial similarities between those who wage marketing and those who wage war. Marketing departments attack or defend. They concentrate their forces on target markets in target territories and talk about penetration, firepower, secret weaponry, allocation of resources, communications backup, tactical breakthroughs and retaliatory action. In moments of genuine hysteria they even pack up their troubles in their old kit bag and sack their advertising agency.

But is the relationship between marketing and warfare anything other than superficial? Those who wanted to find out trooped into London this week for a conference organised by AMR International and the Marketing Society called *boldly: Marketing Warfare*.

From the UK there were draftees from Beecham, Unilever, RHM, Metal Box, Cadbury, Guinness and General Foods, among others, while from Europe, which turned out in force, there were plane drops from Italy, France, Germany, Austria, Spain Switzerland and Scandinavia.

At lunch the first day the troops were addressed by no less a military celebrity than Gen. William Westmoreland, who recently retired from the U.S. Army and is now a Board

director of a number of corporations. The general rattled through the principles of war—objective, offensive, manoeuvre, surprise, security, simplicity, and so on—but spent much of his time dredging up quotations from Sun Tzu, a Chinese general of the fifth century BC. "Sun Tzu said: 'In war the way to avoid what is strong is to strike what is weak.'" "Sun Tzu said: 'All men can see these tactics whereby I conquer, but what none can see is the strategy out of which victory is evolved.'"

Al Ries, chairman of Ries Cappiello Colwell, helpfully discussed the strategic square, thereby defining the four types of marketing warfare to which the conference was addressed: defensive, as in the case of a dominant market leader like General Motors in the U.S., offensive, as in the case of a strong No. 2 like Ford, flanking, as in the case of a minority market shareholder like Chrysler, and guerrilla, as in the case of American Motors.

According to what Mr. Ries calls a glittering generality, out of every 100 companies, one should be playing defence, two should play offence, three should flank

and the remaining 94 should be guerrillas. The rules of offensive marketing warfare were these: the main consideration was the market leader's strengths. Too many companies considered only their own strengths and weaknesses. An attack should be launched on as narrow a front as possible. Offensive wars should be waged with narrow lines, preferably single products. The attack should be launched at the leader's weakest position. The only success that American Motors has enjoyed in recent years, said Mr. Ries, was its Buyer's Protection Plan, an attack against the poor service reputation of GM dealers. A classic case of offensive warfare, he said, was Procter and Gamble's assault on Colgate with its Crest toothpaste, which was launched not only with a \$20m advertising budget but with a P and G version of the English longbow—the American Dental Association's seal of approval.

By definition, he says, defensive marketing warfare is a game only market leaders should play. The best defence is good offence. A leader should always introduce new products and services before the competition. Says Clause-

witz: "The statesman who, seeing war inevitable, hesitates to strike first is guilty of a crime against his country." Flanking warfare? Says Clausewitz: "Where absolute superiority is not attainable, you must produce a relative one at the decisive point by making skillful use of what you have." In practice, says Mr. Ries, this means attacking IBM where IBM is weak, not where IBM is strong. The principles for flanking are these: (1) Good flanking moves must be made into uncontented areas. Digital Equipment Corporation introduced a small computer before IBM: Michieob was the first U.S. premium-priced beer. (2)

Tactical surprise should be an important element. (3) The pursuit is as important as the attack. Guerrilla warfare, which according to Mr. Ries ought to be the marketing mode of 94 per cent of companies everywhere, is based on three broad principles: (1) Find a market segment small enough to defend. (2) No matter how successful you become, never start behaving like the market leader. (3) Be prepared to retreat at any time, for the company that runs away is the one that fights another day.

There was no end of tactical support material from speakers anxious to explain how their companies had successfully outmanoeuvred the opposition with one of these four techniques: Johnson and Johnson and Godfrey Davis on the offensive front, for example, Heinz and Playboy Enterprises with defensive case histories, the director of marketing research at Twentieth Century Fox with an example of flanking and speakers keen to spell out how speed and agility had helped guerrilla operations compete in markets dominated by much larger competitors.

It was all very useful if you want to join West Point. But the metaphor of war was absurdly overblown. In any case, the military is not infallible. Michael Walker, Professor of Government at



South Vietnamese militia units near Phu Lam, 1972. According to current U.S. theory, 94 per cent of all marketing companies should adopt guerrilla tactics and learn to fight another day.

Harvard, has just published a book, *Just and Unjust Wars* (Alan Lane, £7.50), which casts illumination on how the military think. He writes: "Though generals agree on the meaning of strategic terms—entrapment, retreat, flanking, manoeuvre, concentration of forces, and agree about strategically appropriate courses of action. They argue about what ought to be done. After the battle, they disagree about what happened, and if they were defeated, they argue about who was to blame. Strategy, like morality, is a language of justification." Which ought to justify another conference.

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Selling soap at the interface

IS YOUR SALESFORCE aware that at the functional interface between selling and distribution there is an over-burdened need for interfunctional trade-offs so that it can prioritise changes in organisational structure and strategic orientation in readiness for the incremental sales downturn expected midway through next fiscal?

I hope not, writes Michael Thompson-Noel, for how can it sell soap if it is paralysed by jargon? Yet marketing is riddled, from head to toe, by so much gobbledygook borrowed from the management sciences that it is a small-scale miracle that some marketing departments ever think clearly enough for a sufficient length of time to sell a single pot of fishpaste.

A. C. Nielsen, the market research company, has just produced the first issue of an international review called *Marketing Trends* that contains an article by Dr. Dieter Pommerening of McKinsey's Hamburg office. The article is titled *Brand Marketing: Fresh Thinking Needed*, and sets out to discuss marketing in the 1980s and the problems brand marketers will face in dealing with a growing array

of government agencies, regulatory authorities and public interest groups as well as the new trends in consumer behaviour and consumerism. Fair enough, except that at some points it reads as though the jargon is the message. Dr. Pommerening's views undoubtedly deserve a wider audience, though it is a pity he has to resort to the language of "inter-functional trade-offs."

In his view it is high time for a fresh look at accepted marketing concepts and approaches. In many respects, he says, the concept of product marketing is already over-burdened. "But we can go a step further. In the 1980s, strategic marketing will be a prerequisite for survival. Telling the consumer which white is whiter will no longer be marketing's principal concern."

Nostalgia

"The role of marketing in consumer companies has altered greatly just in the course of the past three decades. In response to changes in the business environment it has already gone through at least three distinct phases"—the 1950s, when the

manufacturer was king; the 1960s, when marketers were unequivocally oriented towards the consumer, with strong brand policies that many still look back on with nostalgia; and the 1970s, during which intense pressures from retailers had tipped the balance of power once more and left many manufacturers nursing weakened brand franchises, idle plant capacity and stymied-down profits.

"It is no longer enough to manage product sales, market share and net contribution. Today, individual trade customers need to be managed as profit centres... with the same level of management attention that brands have historically enjoyed under the product management system. This implies an integrated sales/marketing concept whereby product and account strategies are co-ordinated and balanced. It is perhaps ironic that this is basically no different from the approach many industrial manufacturers have adopted for many years in managing their product range across a spectrum of a few large customers."

However, if today's need is to supplement product marketing with trade marketing, says Dr. Pommerening, tomorrow's prime requirement will be strategic marketing. "Marketing must develop a new self-awareness. Gradually, it will have to take on the role of corporate pace-setter."

Keep smiling

"Either one is, of course, feasible; but the company that allows itself to drift into a middle course between the two is headed for strategic disaster. That, unfortunately, is a risk many manufacturers appear to be running today."

"Does marketing really need to rethink its role? Clearly, the answer is yes. Product marketing is not obsolete, but there is already an urgent need for it to be complemented by trade marketing and the systematic management of functional interfaces. In the future, the marketing man himself has to assume the role of strategic pace-setter for his company based on a clear understanding of the complex range of internal and external issues raised by the new trading environment."

Setting aside all functional interfaces, I take it that what Dr. Pommerening is really saying is that in order to keep selling Smash and Bisto and Hovis and Lucozade and Dairy Milk and Galaxy and Persil and Oxo and Weetabix and Fairy Liquid on the scale and at the profit to which they have been accustomed, marketing departments must keep abreast of the times, learn to live with the growth of consumerism, smile bravely at all those government agencies and regulatory busybodies and... keep the product moving. I wish he'd said it.

Berry for Y&R job in N. York

NORMAN BERRY, deputy chairman of the London ad agency Davidson Pearce Berry and Sportswode, is joining the Board of Ogilvy and Mather in New York in mid-summer as executive vice-president and executive creative director. Mr. Berry started Davidson Pearce Berry and Tuck in 1964 and six years later became chairman of the newly formed DPBS, now London's 14th biggest agency with 1978 billings of £21m. DPBS is owned by O&M.

In the U.S., according to the latest survey by Advertising Age, Ogilvy and Mather International was the fourth biggest U.S. agency last year in terms of world billings (\$1,003bn), the fourth in gross world income (\$133.9m), and the fifth biggest in income outside the U.S. (\$82.5m).

In terms of world billings, the top three in the AdAge survey were: 1. J. Walter Thompson, \$1,482bn (gross international income: \$222m); 2. McCann-Erickson, \$1,464bn (\$211m); 3. Young and Rubicam, \$1,369bn (\$204m). According to the full survey, 629 agencies scored a combined 1978 gross income of \$3,462bn (+20 per cent) on total billings of \$23,32bn.

Northern poise wins £1.2m

YOU DON'T need a smart Mayfair office and ranks of leggy temps to run a successful advertising agency, as demonstrated this week by Redheads Advertising of Newcastle and by C. B. Brookes - Advertising of Utttoxeter. (Altogether there are 129 IPA-registered agencies in the provinces compared with 176 in London.)

Redheads has won the £500,000 Lomrho Textiles account in competition with Saatchi and Saatchi, Garland-Compton, Landsdowne Marketing (the JWT subsidiary) and Graham Poulter Associates of Leeds. With northern poise the agency said yesterday that the same Redheads team of Hamish McPherson, Jim Dobson and

Alan Lambert that organised the Lomrho pitch was also involved in the £800,000 Northern Gas Board account win against Saatchi's a year ago. Managing director Ronald Redhead says billings are now £3.5m, which in 1978 would have put it into the Campaign Top 100.

In turn, C. B. Brookes has won the Lancer Boss trucks account, which together with another gain takes Brookes' new business wins this year to £300,000.

● HALFORDS, the auto accessory, cycles and leisure goods retailer, has started a £400,000 TV and Press campaign via Boase Massimi Pollitt Univas.

● THE SIXTH, entirely new edition of the British Code of Advertising Practice will be published on April 10.

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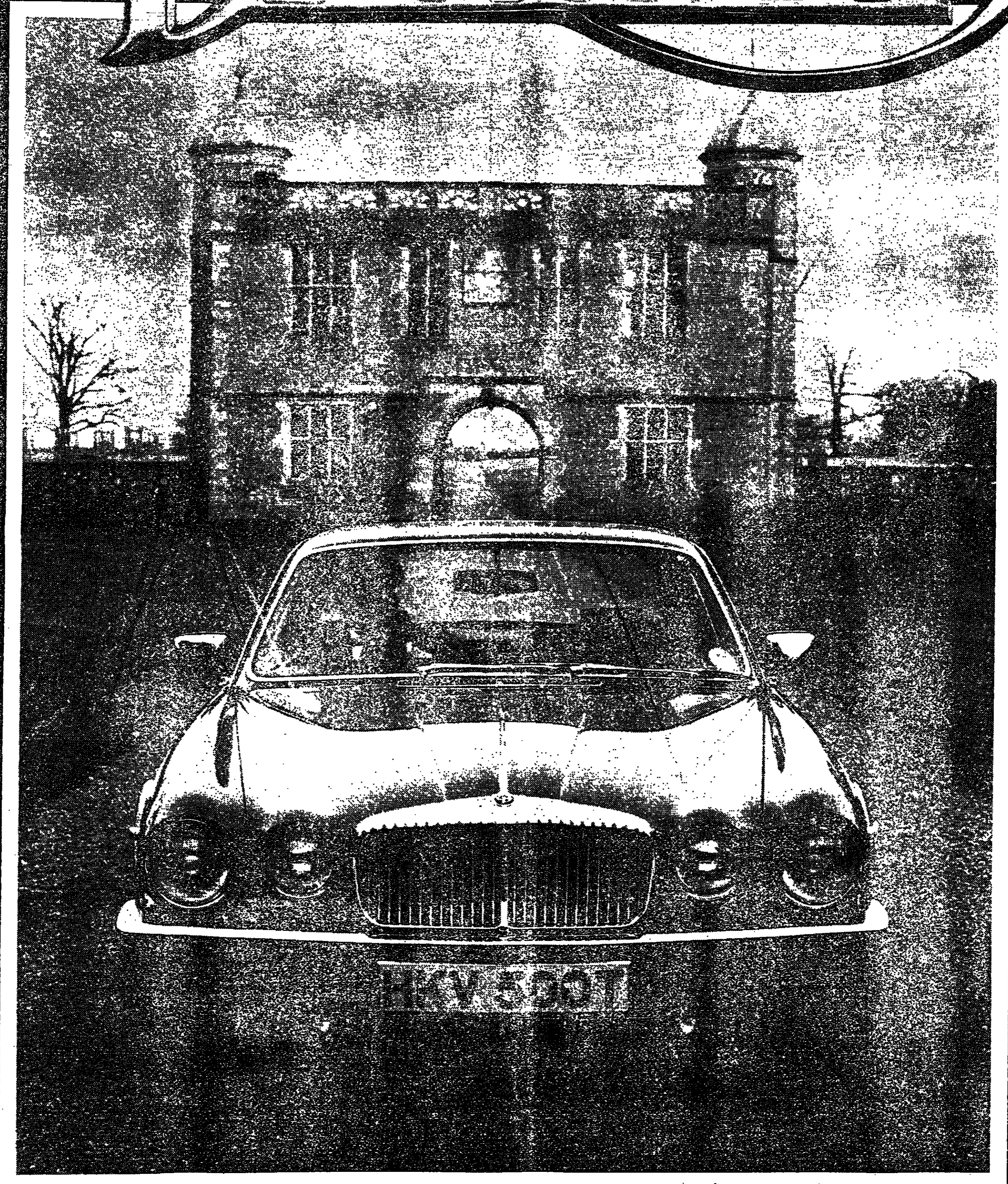
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What senior managers think of recruiters

By MICHAEL DIXON

CAN IT be coincidence? I wondered the other day...

The code, as persevering readers will know, was suggested by the Jobs Column two years ago...

What probably was coincidence was that the new leaflet fell from its envelope on to a pile of trivalent letters...

The only difference between the first proof which sparked the idea in 1977 and the second confirmation was that this time I had done it the other way round.

Two years ago the experiment began with a column declaring that a candidates' charter was needed to protect job applicants from unwarrantable abuses by callous recruiters and employers...

of the IPM's new leaflet) "against the thoughtless, the unreliable, the rude and the downright dishonest who surface in any large batch of job-applicants."

So the Jobs Column came up with the idea of a two-way code for mutual protection. The opposite course of events this year began with an article in mid-February...

On such occasions the only important person was the one who would read the letter of application or conduct the interview, and so decide the candidate's fate, the article asserted. Even the best top executives could not afford to take shelter in their localised reputations...

The clutch of letters which arrived here in answer were absolutely clear and to the point. Fortunately, the main target was not me, but what the

letters' authors consider is the stupefyingly low standard of recruitment consultants and employers that seem to be around nowadays.

Complaints

Various of the complaints were of discourtesies ruled out by the six requirements for recruiters' behaviour, which together with five fit-for-fit deficiencies on the part of job applicants, constitute the IPM code. So clearly far too few people on the employers' side have so far read the provisions...

Other letters, however, complained of two main faults which lie deeper than discourtesy. The first is muddled administration, from which top managers tend to shy away...

The first is muddled administration, from which top managers tend to shy away as the horses of the defeated King Croesus of Lydia did from the chariots of the Medes and Persians—if Herodotus is to be believed, anyway.

Now, before the recruiting fraternity fire off yet another phalanx of letters from their side of no man's land, I will say that I know how senior managers sensitive to bad administration elsewhere, are

liable to be inert to its existence in their own organisations. But it surely does not matter that the other party may be equally blameworthy when shoddy administration on the part of a recruitment concern can so easily wreck its reputation with a loquacious executive of a stature which generally guarantees heedful hearing of his or her opinions.

Moreover, such muddles may be answered by the sort of piquant revenge which, although unknown to the recruiter, is likely to be sniggered about elsewhere. Take for example the top executive who applied for a job through a widely known consultancy and after weeks of receiving no answer even to his repeated inquiries, suddenly received a form thanking him for attending the interview—to which, of course, he had never been invited.

"To test them," the executive wrote to me, "I sent them the travelling expenses that I would have incurred had I been to their office. My thin confidence in the status and ability of such enterprises was thus fully diluted when I received a cheque in settlement, together with a typed letter saying how much the consultant had enjoyed meeting me and looked forward to seeing me again if another of their assignments interested me!

"This sort of massive stupidity is beyond comment," the manager's letter went on. "I hasten to add that the cheque was not returned but forwarded to a charity since that firm needed penalising."

Although the consultancy concerned is known to me, I am not going to reveal its name, because I also know that it is far from the only one which lets administrative nonsense of the same ilk happen to its customers on the candidate side. Such stupidities are not only beyond comment. Any recruitment concern which is not itself stupid needs also to ensure that they are beyond possibility.

Charming, but...

The second main fault castigated by numerous of the letters is less damaging to middle-men recruiters such as consultancies and agencies, than to the interests of the employing concern.

"There being no point in false modesty," wrote one reader making the second type of complaint, "I feel certain you will accept my curriculum vitae as showing that I am doing very well. But I am ambitious to do still better, and so apply pretty often for advertised jobs that could make more for all involved of my obvious ability in senior management and, of greater

importance, in business.

"Though I have been seen by some very charming chaps in head-hunting firms, however—chaps who are much more pleasant to chat to than I am, to be sure—most of them obviously knew very little about general management and nothing at all about business, on any significant scale at least.

"It astounds me that companies which need to fill senior positions and specify the need for candidates with proven records like mine, should then place the selection in the hands of people who are incompetent even to discuss the matters which any candidate worth his salt knows that he needs to know. They would do better to give the task to their prettiest office girl. Then at least they would not be causing able men to give up hours of their time without offering them anything worth pursuing."

While not endorsing that reader's sexist attitude, I can only agree with his main point. But in this case the responsibility for correcting the fault surely lies, not with the culpable middle-man recruiters—who could hardly be expected to sack themselves—but with the highest levels of management of the employing concern.

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NPA Recruitment Services Ltd

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U.K. Atomic Energy Authority

Harwell

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Candidates of either sex, ideally aged 35 - 45, must be qualified accountants, preferably chartered, with several years experience in a senior post in an organisation involved in research and development activities in the scientific, engineering or technical services industries. They must possess the tact and ability to communicate and to develop good working relationships with a wide range of personnel of different backgrounds. Successful applicants are likely to be currently earning at least £8,000 p.a.

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Write in confidence providing brief details of relevant background and experience, quoting reference 1627/L, to D.J. Grant,



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At PA our comprehensive involvement in corporate and business consultancy has shown us that even the most sophisticated organisations value the specialised and objective advice of external experts on broader financial issues and in instances of major change. Our consultancy service to commercial, industrial and public sector clients therefore concentrates, typically, on areas of significant management concern such as business and financial planning and control, corporate financial reviews, and the design and implementation of management information and control systems. Distinguishing features of our work are the extensive use we make of computer-based systems and the broader business know-how which we apply to every assignment we undertake, many of which are on a multi-discipline team basis. This extends into a

necessary involvement in implementation and managing the process of change as it affects the company and its staff. This is a role which will attract qualified accountants (ACA, ACCA or ACMA), probably aged 28-32, with several years experience in industry and a practical knowledge of computer applications. You must also have a broad business awareness and, since our work is international in scope, a European language would be an advantage. Additionally, we have a vacancy for a prospective consultant, aged 26-28, seeking to enlarge on their current experience. Development prospects are excellent.

Please write in confidence giving essential career details and showing how you meet the main requirements, to: The Personnel Manager, reference FAD.

PA Management Consultants Ltd

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The personnel consultancy dealing exclusively with the banking profession

CREDIT ANALYST (Middle East)

c. £12,500

This is a permanent appointment with a leading financial institution in one of the Gulf's major financial centres. Our client wishes to engage an experienced Credit Analyst, aged mid-to-late 20's, who will ideally have received formal training in credit appraisal techniques within an American or other international bank. The individual appointed will be responsible for reporting to senior management on proposed and existing loans. Interviews for this position will take place in London during mid April.

Please contact: RICHARD MEREDITH

INVESTMENT ANALYST

£ negotiable

A leading merchant bank wishes to recruit an additional Investment Analyst. The successful applicant, aged mid 20's, will probably have a degree in Economics with a mathematical flavour, but other graduates will also be considered. Starting salary is negotiable and there is an attractive range of fringe benefits.

Please contact: PETER S. LATHAM

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Our clients, leading money broking firms, have vacancies for brokers with upwards of two years' experience in Interbank or Local Authority sections.

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c. £9500 + Car

Our client forms the Headquarters of one of the worlds most successful marketing and manufacturing organisations.

They are currently updating and standardising their financial reporting procedures worldwide, and now require a young, experienced and qualified accountant to work closely with their Group Reporting Systems manager.

You will be particularly involved in the integration of all financial and management reporting on a sophisticated computerised system, liaising with subsidiary and associate company management on a regular basis. You will also assist in the preparation and analysis of group performance results.

Ideally you will be a numerate graduate holding a professional accounting qualification, with approximately 2 years exposure to computerised systems in an industrial environment.

Ambition, self motivation and commercial acumen will be essential personal attributes within this challenging environment.

Please telephone or write quoting ref. RG 2140.

Lloyd Chapman Associates

125, New Bond Street, London W1Y 0HR 01-499 7761

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Wrong job? Wrong company? Wrong people? Or could it be a wrong attitude—yours? You probably don't know. Unaided, you can't be expected to. Self-appraisal isn't easy, even for those accustomed to appraising others. But we can help you. We can show you how good you are—and at what. We can help you obtain the right job, if you're in the wrong one. With the right company and the right people.

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£15,000+

A small number of senior appointments are to be made to the Civil Service at Under Secretary level. This is a unique opportunity for men and women with recent substantial experience and responsibility in an industrial, financial or commercial organisation at board, senior management or comparable level. The successful applicants will be appointed to positions in departments of state suited to their particular experience and ability. All, however, will have in common an accountability for a distinct and sizeable area of government administration with major responsibilities for decisions and management within that area, for advising Ministers on matters of national policy, and for external relationships with the private and public sectors.

Candidates should normally be aged over 40 and under 52 and, although formal qualifications are not required, they must be of the intellectual calibre of the holder of a good honours

degree or senior professional qualification. Preference will be given to those who have specialised in the fields of financial control, project management and appraisal, corporate planning, personnel management and industrial relations. Some direct experience of dealing with government departments or their agencies would be an advantage.

Salary (inner London): £15,238 from 1 April 1979: £16,524 from 1 April 1980. The appointments, which are unlikely to be outside the London area, will be pensionable and may be permanent or, in special circumstances, for a fixed period (normally 5 years) with the possibility of extension.

For further information and application form (to be returned by 23 April 1979) write to the Civil Service Commission, Alencon Link, Basingstoke, Hants, RG21 1JB or telephone Basingstoke (0256) 68551 (answering service operates outside office hours). Please quote ref G/5003/1.

Manager - Financial Planning

South Wales, c. £8,000

The company, part of a major group, is investing heavily in its production capacity and technology. A prime need, therefore, is high quality financial forecasting and capital project control and these form the major objectives of this position. Candidates should be in their late 20's or early 30's and

must be qualified accountants from the profession or industry and should have experience of current trends in computer-aided forecasting and control. Innovative ability and the strength of character to pursue change is most important. Relocation expenses are good and career prospects are excellent.

J.H.E. Davies, Ref: 37109/FT

Male or female candidates should telephone in confidence for a Personal History Form to: CARDIFF: 0222-40516, 74 Churchill Way, CF1 4DX



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Financial Controller

Chartered Accountant with about three years post qualified experience required to take the accounting responsibility for a division of a growing international organization dealing in the leasing of capital equipment.

The work involves the general financial accounting of the division, financial analysis, transactions and cost accounting. Ability to work without close supervision is essential. The position will be based in London but some international travel would be involved. This position will be of interest to those

earning in the region of £9,000 p.a. at present and there is also a generous range of fringe benefits. Closing date for applications: APRIL 9, 1979.

Ref: A8733/FT.

REPLIES will be forwarded direct, unopened and in confidence to the client unless addressed to the Security Manager listing companies to which they may not be sent. They should include comprehensive career details, not refer to previous correspondence with PA and quote the reference on the envelope.

PA Advertising

Hyde Park House, 60a Knightsbridge, London SW1X 7LE. Tel: 01-235 6060 Telex: 27874



A member of PA International

Financing Administrator

A major International Group, with an annual turnover in excess of £2000 million, is seeking an Administrator for the Group Financing Department at its Head Office in central London.

He/she will join a young professional team which is responsible for the Group's financing operations both in the UK and overseas, including the management of trading and foreign exchange, project and export financing, leasing and cash management.

The successful applicant will be fully responsible for the administration of the Department and will have gained relevant experience in an International Banking or corporate environment.

The appointment offers an attractive salary and incentive bonus with the usual large company benefits appropriate to the considerable importance and responsibilities attached to the job.

Please write in confidence giving full details of your age, qualifications, career history and salary progression to date, stating the names of any organisation to whom your letter may not be sent, to: B. Cavell, Ref: 427/FT.

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* A medium size engineering Group with substantial overseas interests seeks a top level executive for the position of Managing Director of its U.K. operations which have a turnover approaching £100m.

* The prime task is to provide leadership and co-ordination to a number of Divisions working in a highly decentralised, autonomous environment and thereby increase an already above-average profitability.

* A graduate, aged early forties, with General Management experience in large-scale manufacturing industry would be preferred but numeracy and drive are essential requirements.

* A generous salary, bonus and fringe benefit package is available and assistance with relocation to the Midlands will be given if necessary.

Please send short c.v. in confidence to the Group Chief Executive, Box A6696, Financial Times, 10 Cannon Street, EC4P 4BY.

Assistant Managers

MERCHANT BANKING

P. S. Refson & Co. Limited is seeking two additional Assistant Managers for its New Business Department.

The successful candidates will be aged 27-32, hold university degrees and/or professional qualifications and have at least three years' international banking experience. A sound knowledge of trade finance and a proven aptitude for credit assessment are essential. Fluency in foreign languages and a readiness to travel at short notice will be further recommendations.

Salary, rewards and prospects will reflect the importance attached to these positions and will satisfy the most ambitious. Please reply in confidence to:

The Managing Director,
P. S. Refson & Co. Limited,
13, Austin Friars,
LONDON EC2N 2HE.

Assistant to Deputy Chief Executive

A British Group, based on London, which markets engineering products throughout the world wishes to make this new appointment. The business is expanding and the successful candidate will be required to assist a busy Deputy Chief Executive in a wide range of duties, including financial, legal and commercial activities. This would lead into a position in general management in due course.

Candidates, male or female, should be Chartered Accountants. Experience in commerce would be an advantage. Preferred age 28/34. Personal qualities in this appointment are most important. Starting salary around £9,000.

Please apply in strict confidence quoting reference 1799 to Clive and Stokes Ltd., 14 Bolton Street, London W1Y 8LL.

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MANAGEMENT ACCOUNTANT

from £9,500 p.a. neg.

Diacarb Division, situated at Ndola, Zambia—part of the Boart International Group—is the principal supplier of diamond and tungsten carbide rock-drilling tools to the Zambian copper mines. Our workforce numbers approximately 350, including 35 expatriates.

We require a newly-qualified (or finalist) ACMA or ACCA, with experience in an industrial engineering environment. Reporting to the Chief Accountant you will take full charge of the management information system. An important part of your brief will be the upgrading of the present integrated standard costings system, to provide a more comprehensive variance analysis.

The position offers a challenging working environment, superb climate, and excellent social and sporting facilities.

The salary for this position is fully negotiable—and could be extended to the range £10,700-£12,000 should an applicant of sufficient seniority show short term potential for promotion to Chief Accountant of one of the Group companies. A 25% gratuity will be added at the end of each renewable 2-year contract.

Benefits include free furnished housing, settling-in and baggage allowances, interest-free car loan, medical aid scheme, educational and travel allowances, and seven weeks leave a year.

Interviews will be arranged in the U.K. in early May. Please write for an application form, giving full details of your experience and qualifications, and quoting reference no. 28/FT to:

Mrs. M. E. Coombes, 40, Holborn Viaduct, London EC1P 1AJ.

BOART ZAMBIA

Management Accountant Merchant Banking

Chase Manhattan Limited is the major unit of Chase Manhattan Bank's merchant banking Group. Our principle products are loan syndications, bond issues, private placements and financial advisory services.

You will report to the Financial Controller, whose small team make up the Financial Management unit, providing high-quality management information. Progressively assuming responsibility for management information, financial planning, and the financial control function, you will also provide full support in annual profit planning.

A graduate, preferably with a formal accounting qualification from a recognised body, you should have a broad

training in a variety of financial and management accounting systems, including EDP systems—ideally in development rather than usage. Banking or merchant banking experience would be a distinct advantage but is by no means essential.

We offer a salary in the region of £8,000 per annum, and the substantial benefits of a major international bank which include preferential mortgage and personal loan schemes, and non-contributory pension and life assurance.

Please write with full career details to:

Janice Shiner, Chase Manhattan Bank NA, Woolgate House, Colman Street, London EC2.



TREASURER

Age: 35-45 Up to £10,000
Central London

Our client is a major public company in retailing, wholesaling and distribution. They require a Treasurer, who will operate within the Finance Division. The responsibilities include the management of the Group Treasury function; utilising surplus funds and determining and making available additional cash resources as required. The candidate will be required to maintain close contact with bankers, money brokers and financial institutions. An integral part of the work will be to develop cash forecasting procedures.

Candidates should have an accountancy qualification or alternatively have had relevant treasury experience in a large company, banking or a financial institution. A car and other fringe benefits will be provided.

Please send a comprehensive career résumé, including salary history, quoting ref: 873/AA to:

W. L. Tait,
Touche Ross & Co.,
Management Consultants,
4 London Wall Buildings,
London, EC2M 5UJ,
Tel: 01-588 6844.



Good 'A' Level Results? Interested in Finance?

If you have three good 'A' levels including a mathematical subject, and are under 20 with accommodation in the London area and are interested in an opportunity in Finance, we would like to hear from you. Your on-the-job training would equip you to progress within Shell's Finance Function, and there would be good promotion prospects for those with ability, drive and initiative.

Starting remuneration would be circa. £3,600 including London Allowance, Contributory Pension Fund, Free lunches, 4 weeks annual holiday. Membership of our sports and social club would be available to you, with its wide range of facilities including a swimming pool and squash courts in the building.

Telephone or write for an application form to Shell International Petroleum Company Limited, LP112, Shell Centre, London SE1 7NA, 01-934 2828.

Financial Controller

(15 manufacturing units)
c. £12,000 + car

Located in London, our Client is a well known company and one of the leaders in its sector. Engaged in the manufacture and sales of fast moving consumer goods throughout the world, the U.K. operations are being restructured and a new position has been created for a Financial Controller.

Reporting to the Managing Director, the appointee will be responsible for the total Financial and Management Accounting functions. There are currently around forty staff in the Accounting departments. Of particular importance will be the need to establish improved management standards throughout the accounting activities and beyond. There will thus be close liaison with the other members of the management team to achieve greater effectiveness and profitability.

Candidates, male or female, must be qualified accountants, minimum age 30, who have had sound manufacturing accounting experience.

The ability to motivate a large team, and a decisive management style are essential.

Benefits include a car, free BUPA, and a non-contributory Pension Scheme.

Please apply in writing, giving your telephone number, and quoting Ref: 920, to Peter Barnett, F.I.P.M., M.I.M.C., Barnett Keel Ltd., Providence House, River Street, Windsor, Berks, SL4 1QT. Tel: Windsor 56723. Telex: 849323.

Barnett Keel
MANAGEMENT SEARCH

SISSA



**SCANINVESTMENT SERVICES S.A.
SENIOR INVESTMENT OFFICER**

Scaninvestment Services S.A., Geneva, jointly owned by Scandinavian Bank Limited, London and Banque Scandinave en Suisse, Geneva, is seeking to appoint a Senior Investment Officer to assist in developing its expanding investment management and financial advisory services.

Duties will include the formulation of investment proposals for Governmental, institutional and private clients; the analysis of economic indicators and forecasting of interest and foreign exchange rate trends; shared responsibility for marketing the Company's services.

Candidates, aged 28-35, will probably already be working in international fund management, merchant or investment banking or related fields. The main qualifications required are a good degree or professional qualification; proven ability in Euro-currency and foreign exchange markets; a good knowledge of international bond and related markets and an ability to work independently.

The successful applicant will be located in London and will be expected to travel widely. An attractive salary and other benefits appropriate to an appointment in banking will be offered.

Applications, which will be treated in the strictest confidence, together with a detailed curriculum vitae should be sent to:—

Scaninvestment Services S.A.
c/o H. E. Child, M.B.E.,
Personnel Manager,
Scandinavian Bank Ltd.,
36 Leadenhall Street,
London EC3A 1BH.

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In order to maximise the potential of the current market—and to lay the foundations of future expansion—we are now looking for an experienced man or woman with an in-depth knowledge of computerised systems within banks, who has the commercial acumen to lead our systems sales operations.

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We can offer you on target earnings of around £11,000. (By on target earnings we mean the very least you should earn in your first year of operation—most people earn a great deal more). A full range of benefits will include a Company car.

Please write for an application form giving brief career details, to:—
Ann Winter, our Personnel Manager, NCR Limited, 206 Marylebone Road,
London NW1 6LY or telephone her on 01-723 7070.



Complete computer systems

City

c.£10,000 + car

FINANCE MANAGER

Late Twenties

The Client A significant investor in shipping and real estate.
The Job To join a small headquarters team engaged in identifying new investment opportunities world-wide. Reporting to the Group Chief Executive, responsibility will be for all aspects of financial and management accounting, including the preparation of consolidated accounts. The man or woman appointed will also provide support to the Group Chief Executive on project appraisal and company secretarial work. Some overseas travel will be necessary, and the base may well move to Monaco within 2 to 3 years.

The Candidate A qualified accountant, aged up to 30. Post qualification experience could have been gained in the audit or investigation department of a major accounting firm, in a merchant bank, or as a financial accountant at the headquarters of a group of companies.

Brief but comprehensive details of career and salary to date which will be treated in confidence, should be sent to E. H. Simpson, Executive Selection Division, Ref. SF789, at the address below. Please include a daytime telephone number at which you may be contacted.

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To help in expanding Kemp-Gee's client coverage in the market for Government Securities. A relevant professional qualification would be useful but the principal requirements are experience in and knowledge of the market and the ability to get on with professional fund managers. The position is an important one and the remuneration, including profit-sharing, will be competitive.

Please write, in confidence, to:

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**Pensions
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**Self-administered Schemes
c.£11,000 plus car & benefits
South of England**

For a prominent UK industrial group with overseas interests, having schemes for over 13,000 personnel in management, staff and operative grades. The appointed Manager will report to the Group Personnel Administration Manager, be responsible for planning and formulating the pensions policy, control the total administrative function with a staff of 12 and liaise with the funds' professional investment and technical advisers. Candidates (men and women) should ideally be professionally qualified and have at least five years' pensions management experience, probably gained at Deputy level in industry. Particular interest will be shown in candidates who include strength in departmental leadership. Age guide, late 30s/40s. Reference 148.

Please write, or telephone 01-499 2215 in confidence.

Philip Egerton & Associates

Selection Consultants

178-179 Piccadilly, London W1V 0QP

**Manager
Finance &
Administration**

Red Sea Area c.£14,000

For a major international corporation at its Red Sea Area office.

Reporting to the area manager, the position carries responsibility for the finance function, including comprehensive management accounting and budgetary control, as well as for office administration. Some local travel is involved.

Candidates, aged at least 28, and preferably single, should have a recognised accounting qualification. They should be self starters, with a commonsense approach, and with proven experience in accounting management.

For an application form, write in confidence showing how you meet the specification and quoting reference 2364/T, to J. H. Cobb,

Peat, Marwick, Mitchell & Co.,
Management Consultants,
Executive Selection Division,
165 Queen Victoria Street,
Blackfriars, London, EC4V 3PD.

DIRECTOR

MICRO-COMPUTER DIVISION

EARNINGS PACKAGE c. £15,000

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Plus Bonus Plus Car Plus Benefits Plus Plus
A highly successful, rapidly expanding and profitable systems company requires someone of the highest calibre to fill this new and top-level position. The company forms part of a substantial, well established, computer oriented group of companies, has considerable backing from that source and is staffed by strongly motivated, highly competent and ambitious professionals.

Applicants must be able to negotiate at the highest levels from both commercial and technical standpoints. They must also have extensive front line experience in mini-computers and have a well proven management track record in computer systems generally.

Salary as above, plus all usual big company extras.

Replies with curriculum vitae to:

Maidment Posner Consultants,
78 Wimpole Street,
London W1,
Reference 582

**INTERNATIONAL
BANKING**

CORPORATE LIAISON OFFICER

The London subsidiary of one of Europe's leading International Banks wishes to appoint a Corporate Liaison Officer to service the short-term banking requirements of its growing list of UK and international corporate clients.

The work involves a high degree of personal contact coupled with a sound knowledge of short-term financing techniques both in sterling and foreign currency. The candidate should also demonstrate an ability to converse freely on foreign exchange and allied matters.

An attractive salary and a full range of benefits are offered reflecting the importance of the position.

Applications with curriculum vitae should be sent to Box A.6721, Financial Times, 10, Cannon Street, EC4P 4BY.

LEASING EXECUTIVE

An opportunity exists with an International Bank for an individual with a leasing and financial background to develop the Bank's existing leasing activities both domestically and internationally.

A legal, financial or numerate qualification is desirable although not essential.

The remuneration package includes the usual fringe benefits associated with Banking employment.

Interested candidates should provide a handwritten letter and full curriculum vitae to:—

Mr. Michael Gibbs,
LONDON & CONTINENTAL BANKERS LTD.,
2, Throgmorton Avenue, London, EC2N 2AP.

The Consultants for Trade and Industry (CTI), one of Sweden's leading management consultancies, has been commissioned to assist in the establishment and development of a national technical and economic consulting body for Tanzanian industry—the Tanzania Industrial Studies and Consulting Organisation (TISCO). The assignment, now in its third year, includes direct participation of expatriates in the operation of TISCO as well as on the job training of Tanzanian counterparts. At this stage the TISCO operations are mainly concerned with pre-feasibility and feasibility studies related to industrial development in Tanzania. Three additional consultants are now sought to join the international team already established in Dar es Salaam.

Senior Management Consultant

£12,000 pa tax free

The main responsibilities of the Senior Management Consultant are to form working teams for techno-economic studies, as well as to participate in various TISCO assignments with a special emphasis on policy, management and organisational aspects. Additionally, he will be required to evaluate industrial projects from a management and organisational standpoint and to formulate programmes for resolving potential problem areas.

A degree is essential and preference will be given to those candidates with an MBA or post-graduate studies in management-orientated subjects. Varied and practical experience of general management at an international level is a necessary requirement and this experience should be both in industry and consultancy.

**Senior Consultant
Industrial Financing and Investment**

£12,000 pa tax free

The Senior Financial Consultant will review and analyse the financial requirements for the development of Tanzanian industry. This role will include assessing the potential availability of investment resources both inside and outside the country and the person appointed will participate in the mobilisation of these resources for specific industrial ventures. The consultant will be called upon for advice on financing options and on investment costs and practices.

Candidates should have an academic qualification in Accountancy and Economics and preferably have followed a post-graduate course in Industrial Economics or related subject. It is expected that the successful candidate will come from the field of international banking and that he will have had specific experience in project financing and investment procedures.

Industrial Economist

£12,000 pa tax free

The principal role of the Senior Consultant Industrial Economist will be to participate in feasibility studies by evaluating and advising on the viability of industrial projects in terms of rates of return and financing.

This post calls for a graduate in Economics or a related subject with extensive practical experience from economic and financial analysis of industrial projects.

All candidates should have an appreciation of both the fundamentals of industrial project development and of the contextual elements such as regional development and industrial sector development; first-hand knowledge of the Third World would be an advantage.

For each of these posts the initial contract with CTI will be for 2 years and the salary will be £12,000 pa tax free. The full remuneration package will include free housing, six weeks leave per year, vacation travelling expenses for self and family, school fees either in Tanzania or the UK for dependent children, medical insurance and other allowances and expenses; residential base will be Dar es Salaam.

Please send comprehensive career details in strictest confidence to:

Aubrey Wilson Associates (Ref: CTI), 2nd Floor, 26 Holborn Viaduct, London EC1.

Preliminary interviews will be conducted in London by CTI's representative.



The Consultants for Trade and Industry

Saudia, flag carrier of the Kingdom of Saudi Arabia, has a vacancy, based in Jeddah, for

MANAGER-TAXES

Starting Salary £14,000 p.a. Tax Free

The successful applicant for this position will be responsible for the complete administration of all taxes incurred by the Airline both within Saudi Arabia and abroad, negotiating with government officials as necessary and representing the Airline at conferences and hearings. Duties will also include: ensuring that tax returns, accounting data and financial statements are submitted on time to the individual tax authorities, to conduct a comprehensive study of the tax laws and regulations of countries where Saudia employ personnel, to ensure conformity with the local laws i.e. social insurance, family benefits, expenses, allowances etc.

Applicants should have at least 6 years previous related experience and possess a Degree in either Mathematics or Accounting, and have a Finance, Legal or Administration background preferably gained with an airline.

This post, open to men between the ages of 25-45, is offered on a two year renewable contract, together with free accommodation, free and reduced rate air tickets for you and your family, 40 calendar days vacation, plus relocation allowance.

Please write giving full personal and career details, quoting job title and department number to:

Area Personnel Manager-Europe,
Department 144/2,
Saudi Arabian Airlines,
508/510, Chiswick High Road,
London W4 6SQ.
Closing date: 21st April, 1979



**Head of Budgets
and Plans**

East Midlands £12-14,000

A key public group in a manufacturing process industry, with a multi-million pound turnover, seeks an experienced executive to develop its planning and budgetary functions. The company is entering a phase of expansion and appropriate systems support is needed to underpin future growth.

The role encompasses both the introduction of a modern budgetary control and planning system and the building of a competent team to operate it. Management skills are a key element.

Candidates aged 30-42 should be business graduates, or professionally qualified, and have an outstanding record of achievement in operating planning and budgetary control systems with experience of financial analysis. This practical experience should have been gained in a large company environment, preferably within the chemical process industry. They should be capable of earning and maintaining the confidence of all levels of management through their ability and judgement.

Please write in complete confidence, quoting ref 1031, to: Michael Waggett, who is advising on this appointment.



MANAGEMENT CONSULTANTS
Odgers and Co Ltd, One Old Bond St,
London W1X 3TD 01-499 8811

Experience in Commerce or Accounting?

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If you have the ability to cope with the problems of businesses in financial difficulties with energy and style, contact us now. We are Thornton Baker, a national firm of chartered accountants, and need more Seniors in our expanding insolvency departments, which deal with a wide range of special work as well as receiverships and liquidations.

You must be able to communicate effectively with businessmen, their bankers and solicitors, together with fellow professionals, and show initiative in making commercially rational decisions in stress situations. Previous experience of this work would be an advantage, but is less important than enterprise, ambition and the will to succeed. You will be a qualified accountant or will have experience in the commercial or professional field.

We offer in return programmed professional development, including specialist and general in-house courses, early responsibility and real involvement in the technical and administrative development of the practice. Progression is limited only by your own ability, and salaries offered are very competitive in a range up to £7,500 depending on location.

Thornton Baker has offices in nearly every major centre throughout the U.K., and can therefore give you an unrivalled breadth of experience and range of opportunity. Whichever of our offices you work from, you will find the highest level of standards, constantly under review. Courses in the ideal atmosphere of our own residential training centre, Bradenham Manor near High Wycombe, will help you to maintain them.

Interested? Then pick up a phone and ring one of the specialist partners shown below:-

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Peter Braine
0273 778955 | Bristol
David Bird
0272 28901 |
| | Liverpool
David Rowlands
051-227 4211 | Manchester
Robert Hayton
061-834 5414 | Newcastle
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0632 612631 |

THE NATIONAL ASSOCIATION OF PENSION FUNDS (NAPF)
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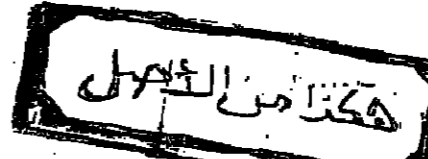
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THE ARTS



Record Review

Böhm's Idomeneo

by RONALD CRICHTON

Mozart Idomeneo. Mathis, Varady, Oehman, Schreier...

The new Idomeneo from Deutsche Grammophon has much to recommend it...

The cast is based on the Salzburg Festival revival of some years back...

The voice has not entirely borne out the early promise...

The effort of sounding reasonably boyish beside a light-voiced...

The effort of sounding reasonably boyish beside a light-voiced...

as Arbace (allowed one of his arias) is surely a potential...

Böhm as conductor is one thing. Böhm as Mozart scholar...

Every conductor must make some choice among the embarrassing riches...

H. C. Robbins Landon's monumental Haydn: Chronicle and Works...

important place. One of them is L'isola disabitata...

The peculiarity of the work is that the arias are separated...

Early this century Weingartner revived the work in a German version...



Sylvia Sass and Boris Christoff

Covent Garden

Don Carlos

by ARTHUR JACOBS

Boris Christoff first appeared at Covent Garden in 1949...

The renewed opportunity of relishing this interpretation almost excuses the weakness...

covered" tone. Alas, this tone was an expressive device which she made tedious by over-use...

The conducting of the 29-year-old American, James Conlon...

Gwynne Howell admirably conveyed the sinister force of the Grand Inquisitor...

Elsewhere, Douglas Parkin's Miracles Do Happen shows what vicars get up to while their wives are off discussing the church funds...

Arts, Cambridge

The Constant Wife

by B. A. YOUNG

As the biographies mount up, so the autobiographical content of Maugham's The Constant Wife...

Maugham's theme, that wives should have as much freedom for infidelity as their husbands...

Susan Jameson keeps Constance down to a decent level with no hint of the superwoman about her...

All the women look ravishing in their 1927-ish clothes and cloche hats...

Theatre Upstairs

Young Writers' Festival

by MICHAEL COVENEY

There are five plays by teenage writers in this year's...

Paul Lister's Island is the "most promising" of the bunch, with three "inner city products"...

Julia James (aged 15) has contributed a bright classroom piece for stropky fourth-form girls...

Elsewhere, Douglas Parkin's Miracles Do Happen shows what vicars get up to while their wives are off discussing the church funds...

Elsewhere, Douglas Parkin's Miracles Do Happen shows what vicars get up to while their wives are off discussing the church funds...

Logan Hall

The Jacobin by ELIZABETH FORBES

Bohus, the so-called Jacobin of Dvorak's opera, is no blood-hirsty revolutionary...

Dvorak's score is saturated with Bohemian folk music...

not dare to discourage Jiri too much—he is a tenor...

Antony Ransome made a sincere, not always vocally steady Bohus...

Mikhail Pletnyev (b. 1957) istissimo flitree and thunderous the young Soviet first prize-winner...

was well-matched by the lyrical-voiced Jiri of Keith Lewis...

Stephen Barlow, conducting the eager COG Orchestra...

Below the surface of the notes, however, the performances were unremarkable...

Elizabeth Hall

Lassus Ensemble

The problem of presenting liturgical music in the concert hall is not, I am convinced, the familiar one of church versus concrete...

As it was, even the chanted lessons were sensibly cut: attention was focused on the polyphony...

Elizabeth Hall

Mikhail Pletnyev

by DOMINIC GILL

Mikhail Pletnyev (b. 1957) istissimo flitree and thunderous the young Soviet first prize-winner...

Mikhail Pletnyev (b. 1957) istissimo flitree and thunderous the young Soviet first prize-winner...

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AKBANK advertisement featuring a balance sheet table, a list of services, and contact information for various branches.

Thursday March 29 1979

Competition and the law

COMPETITION policy in this country, unlike that of the U.S. and some European countries, is not predicated on the belief that the competitive system should be upheld at all costs. The UK policy-makers have always recognised that the economic benefits of concerted action or concentrated market power may on occasion outweigh the economic disbenefits. Neither has the development of policy, and the decision in particular cases, been based solely upon economic considerations. The promotion and maintenance of competition has to be weighed against other policy considerations such as employment, external payments, or regional policy.

But where particular categories of anti-competitive practices have been found to operate invariably against the public interest, they have either been banned outright or subjected to judicial prohibition unless a case for exemption can be demonstrated on the basis of certain statutory criteria.

Certain and certain other forms of collective discrimination relating to the supply of goods were legislated against on this basis in 1956; and the restrictive practices legislation since then has been extended to the fixing of resale prices by suppliers, to information agreements, and more recently to the supply of commercial and many financial services.

Pragmatic

This pragmatic approach, using the courts where justiciable issues could be identified and administrative investigations by the Monopolies and Mergers Commission where no a priori presumption about the public interest can be made, has stood the economy in good stead. Together with trade liberalisation, it has helped to create a more competitive industrial climate and promoted efficiency.

But it has meant that the scope of the UK restrictive practices legislation is defined in terms of the form of anti-competitive arrangements, rather than their purpose or effect as in the U.S. West Germany, and—in particular—the EEC. As a result, some agreements caught up in the legislation have no significant effect on competition, while other anti-competitive arrangements are excluded.

British membership of the Community has naturally prompted discussion as to whether we should sign up to the system under the EEC. The inter-departmental review

Portugal needs stability

THE RESTORATION of Portuguese democracy has been widely, and rightly, admired by other Western countries. Few people, however, would deny that governing the country has been a rather thankless task over the past three years. The country's intractable economic problems, due partly to the revolutionary excesses of 1976 and partly to long years of neglect under Dr. Salazar's dictatorship, have made substantial foreign aid indispensable. But none of the four Governments since the first democratic elections in 1976 has so far possessed the combination of determination and broad political support required to push through the unpopular measures necessary to put the country firmly back on its feet.

Armed forces

With no single party commanding a Parliamentary majority, successive Governments have had to steer a precarious course. Leaving policies to drift apart is the ever-watchful Armed Forces, while a tilt to the right is bound to alienate the powerful Communist-dominated trade unions. The difficulty of undoing some of the damage done in 1975 has constantly been underlined, for example, by the problems of agrarian reform. Less than two weeks ago, the present Government of independent "technocrats" led by Sr. Carlos Mota Pinto was shaken by the resignation of a minister demoralised by persistent Communist criticism of his attempts to return collectivised land to its former owners. Now Sr. Mota Pinto has tendered his own resignation following the defeat of his austerity budget in Parliament last week.

In addition to his other problems Sr. Mota Pinto has to face the deep suspicion of the political parties, which remain unconvinced of the democratic credentials of his independent non-party Government. Nevertheless, it is not clear that he really intended to bring him down by rejecting the budget last week, not only are they divided among themselves, they were also unsure of each other's intentions when the budget was

put to the vote. That being so, and given the lack of any obvious alternative, President Eanes has probably acted wisely in refusing to accept Sr. Mota Pinto's resignation.

Whether he likes it or not, President Eanes has been forced to assume a greater share of responsibility for running the country since the end of party Government last year. Earlier this month, he found himself obliged to issue a reminder that the reason for his appointment of Sr. Mota Pinto was the failure of the elected political parties to agree on a governing formula. Reaffirming his support for the Government's stand on land ownership, he made the perfectly fair point that he was accepting risks of unpopularity that the political parties "would not or could not accept."

So long as the parties are incapable of forming a Government, and there is little enthusiasm for new elections, the most sensible course is for Sr. Mota Pinto to try to carry on. Elections would be unlikely to alter the political line-up significantly and would almost certainly fail to produce a majority Government. Under the Constitution, elections have to be held next year in any event, and few people in Lisbon want to have to go through the process twice in twelve months.

Compromise

Another reason for Sr. Mota Pinto staying in office is the need to re-negotiate Portugal's economic policy commitments to the International Monetary Fund so as to make fresh international finance available. The fund is unlikely to resume negotiations in Lisbon until the disputed budget and fresh economic guidelines have been safely adopted.

It should not be impossible to work out a compromise solution on the budget, which Sr. Mota Pinto has now agreed to re-submit to Parliament next month. In recent days, rumblings have once again been heard from conservative elements in the armed forces. Portugal cannot afford itself the luxury of yet another political crisis.

Nordic pulp and paper: trouble mounts

BY WILLIAM DULLFORCE, NORDIC CORRESPONDENT

THE WORD "crisis" has been quite commonly used in the past few months in talking about the Swedish and Finnish forest industries. The recent improvement of the prices and export earnings of pulp and paper have not put an end to that. Governments have been forced grudgingly to rescue one or two of the most exposed companies, and greater state involvement of some form or other appears to be inevitable. The managing director of Sweden's largest pulp and paper group, Mr. Bo Rydin of Svenska Cellulosa (SCA), recently called on the Government to take a stake in the pulp-making industry.

Attitudes are coloured by the severe profit slump almost all the mills have experienced in the past three years, but the anxieties of company managers have deeper roots. The long-term problems they foresee stem from the attack on their traditional European market by North American and other competitors operating in more favourable capital, raw material and cost conditions.

Traditionally the Swedish and Finnish pulp and paper industries have been the domain of private enterprises with very few State-owned companies, but the present structural problems have prompted official demands for greater public control. They have come from the Swedish Social Democrats, the Swedish Paperworkers' Union and the Finnish Communist Party.

Finnish Social Democrat Ministers, who have been reluctantly drawn into a dialogue with leaders of the industry during the past year, saw a considerable State presence. It would be no surprise if they were to provide it on the industry's terms and to some form of State participation, they say. However, the non-socialist parties' gains in the recent election could enhance the companies' chances of getting financial relief without direct State involvement in the business.

Both the Swedes and the Finns are also sensitive to the possible reaction from the European paper industry and from the EEC Commission in Brussels to the strategic decisions they may make. The advantages of the two countries' free trade agreements with the EEC, they say, need to be consolidated, not put at risk.

Conversely, at a time when the Commission itself is probing the state of the EEC paper and board industry, and the French Government, for instance, is anxious to restructure its own industry, the situation in the Nordic countries must be of prime interest. These countries are still the largest suppliers of EEC pulp and paper imports.

Last year's report by the Boston consulting group on Swedish industry has been harshly criticised by the manufacturers for categorising forest products among those branches which were in decline and could not contribute to long-term economic growth. The critics argue with some justification that the Boston group underestimated the opportunities for a more efficient and profitable exploitation of the available wood resources by making products involving a greater depth of manufacture.

But the group's approach, emphasising corporate economics and the competitive

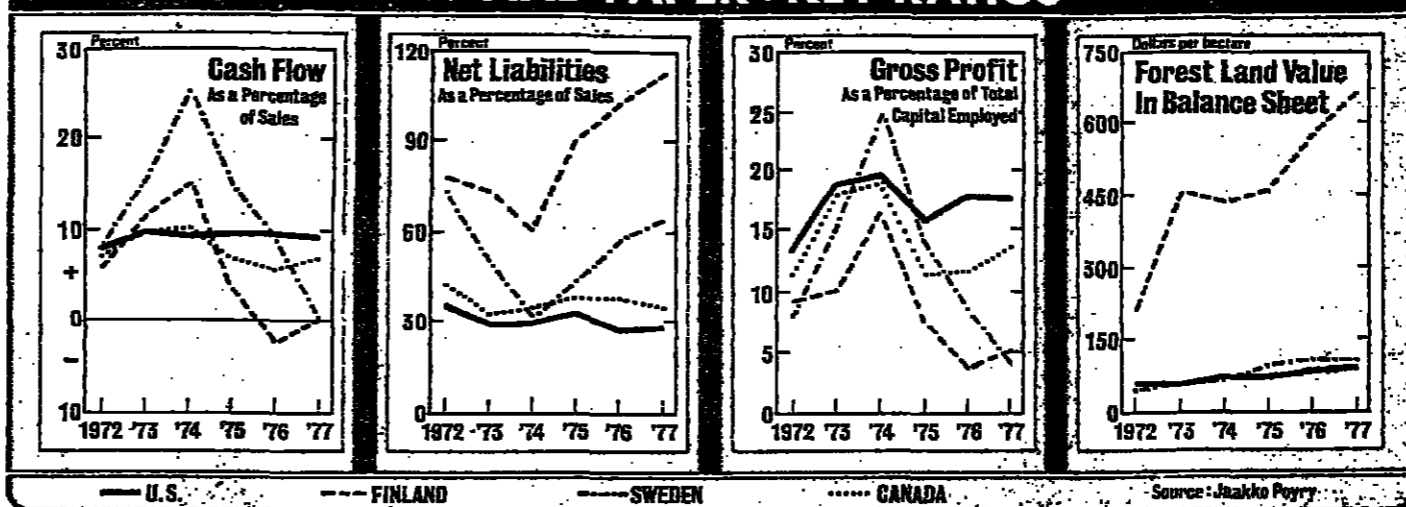
harvesting an expensive business. Mr. Lars Sundblad, managing director of Iggesund, calculated recently that a Swedish mill producing 250,000 tonnes a year of bleached sulphate pulp would earn SKr 100m (£11.4m) a year less than a comparable U.S. mill.

When these factors are combined with the slower growth rate of presses in the northern climate, the Nordic producers start with a significant disadvantage. It has been made worse recently by the decline of both the U.S. and Canadian dollars. The two factors together have eroded the advantage of the

their forest land to a point where Arctic forests with slow growing pines are booked at six times the value of forest plantations in the southern U.S.

The Finnish companies claim that the book value accurately reflects the true market value, a circumstance which only reflects the social conditions under which they operate and the high cost of their raw material. Mr. Aarno Eaila, the vice president of Pöyry responsible for the study, calculates that wood under bark costs \$55 per cubic metre at the mill in Finland, compared with around \$20 in the southern U.S.

PULP AND PAPER: KEY RATIOS



situation of Swedish companies, did spotlight some weaknesses in the pulp and paper companies. If it is assumed that they will continue to operate in market economy conditions, these deficiencies have since been underlined by the Finnish consultants, Jaakko Pöyry. Pöyry's basic aim was to compare the Nordic companies with the North American. The Finnish consultants' major findings are illustrated in the accompanying diagrams.

They show that with the exception of 1974 the Americans and Canadians have achieved a higher return on capital employed and that the gap widened in 1976 and 1977. They managed this with consistently lower capital expenditure. The most significant diagrams are those showing the ratios of liabilities to sales and the valuation of forest land in the companies' balance sheets. By 1977 the net average debt of the Finnish companies was greater than their annual sales while the Swedish companies had a debt ratio of around two-thirds of sales compared with the 30 per cent of the North American companies. To balance the liabilities in their balance sheets the Finns have written up the book value of

the Nordic mills' dilemma lies in the conjunction of high wood prices and a low dollar rate. (All the pulp and about one-third of paper and board products are tied to dollar prices.) Wood costs have been inflated by several political and social influences, including the intention to keep farmers' living standards commensurate with those of industrial workers, high taxation, and changes in ownership patterns. Particularly in Finland these have resulted in forest land becoming a secondary source of income rather than a primary one.

Even for those Swedish companies, which possess substantial forests of their own, high labour costs and the heavy investments in mechanisation make wood

Nordic mills' lower transport costs to the European market. The mills have been helped by the devaluation of the Swedish krona in August 1977 and of the Finnish mark in February of last year. As the sources of the largest net export incomes of both countries they would prefer their Governments to operate more flexible exchange rate policies, but the requirements of other industries and the need to contain inflation make consistent devaluation policies impossible.

The logic of the situation calls for the mills to exploit the quality of their long-fibre wood by producing paper and board varieties which require a higher degree of processing. Printing papers are one example. Thermomechanical pulp offers a more efficient use of the wood than does chemical pulp, but it also takes far more energy. Both courses would involve heavy capital investment and the production of higher processed paper raises a delicate trade issue. The European paper makers already complain that the Nordic mills sell them expensive pulp at the same time as they hold down the prices of their competing paper products. Any Swedish or Finnish company investing in a new paper product will insist that it does

not intend to disturb the European market for that product.

Some companies are planning new investments. SCA has several projects close to the decision stage. Stora Kopparberg and Papyrus have announced their intention to invest in new plant to make magazine paper and lightweight coated paper. In Finland Rauma Repola is expanding and modernising its paper and machinery.

When discussing the future of their companies and industry, most Nordic paper makers sooner or later return to one preoccupation: how to generate

normal banking risks. This could not have happened without the tacit though not formal approval of the Bank of Finland.

In Sweden the Liberal minority Government is not in a position to force State participation but is being forced to take holdings in NCB and Sodra, the companies owned by the farmers' co-operatives. The restructuring of these companies is expected to cost over SKr1bn. Apart from this forced intervention, the Government would prefer to let market forces determine the future shape of the industry.

An analysis undertaken by the Ministry of Industry, however, concluded that the 20 largest Swedish companies would need to spend some SKr17bn in the next five years on rationalising and modernising and on the establishment of new plant producing higher quality products, if they were to remain competitive. It put the total capital requirement, including investments in supporting sectors and the costs of mergers, at SKr40bn.

It is against the background of these figures that the surprising suggestion of Mr. Rydin, SCA's managing director, that the state should help bear the costs of pulp manufacture must be seen. Mr. Rydin's point is that on the basis of current wood prices and the present dollar rate it simply does not pay companies to invest in new pulp mills or in modernising existing plant.

At the rate of SKr 4.90 to the U.S. dollar which existed briefly after the devaluation of the krona in August 1977, the Swedish pulp mills could operate at profit. Mr. Rydin calculates. Since then the rate has fallen to SKr 4.38. If the Government is not prepared to change the rate again, it should be ready to invest public funds in pulp production, he argues. But it is doubtful whether the present Government or the Social Democrats one which could replace it later this year would be prepared to subsidise the forest industry by financing the unprofitable part of its production. It could have undesirable repercussions in Brussels.

The Swedish and Finnish forest industries contain many companies which are still healthy and vigorous. At the same time it is evident that the industries as a whole are badly stretched financially and have to cope with competitive disadvantages arising from their Governments' social policies. The situation is almost certain to call for greater state involvement but the exact shape of this involvement has yet to emerge, partly because both countries have either had or will have a general election this year, and partly because the reaction of the industry's European customers has yet to be gauged.

MEN AND MATTERS

Getting on the inside track

Industrial spies, according to a Times Television programme being broadcast tonight, have shed their binoculars and come in from the cold. No longer content with the inconspicuous, today's industrial spy is disguised as a market researcher.

Using a variety of "plate-forms" (poses), these "researchers" will rarely disclose who their real clients are. Having gained the confidence of a company on the basis, perhaps, of representing Canadian health food stores or Yugoslav banana importers, they report back what they have gleaned to principals who may be rivals or companies intent on a takeover.

Such, at least, is the sinister picture being presented by Inside Business, a programme which, it must be said, has a reputation for doing its homework.

One of the results has been a fat dossier, naming names, which has been examined by a select band of British Institute of Management officials. Yesterday, the BIM admitted to me, "some" of the companies named were members and "the sort of people who would not want to be identified with this sort of operation." Although the BIM co-operated with the programme, it was not, however, going to be involved in a witch-hunt, and had no idea how widespread the practice was.

Anxious to steer a course through the libel minefield, Inside Business has also avoided publicly naming names, but reporter Peter Gill tells me: "We are totally confident of our sources because they have provided chapter and verse." The programme includes an interview with a victim.

Less than two weeks of the market research companies named in the dossier are fairly large and well-known, but yesterday the industry poured a steady stream of cold water over the notion that it was making espionage

respectable. Bill Schlackman, chairman of one of the larger market research companies, told me he might well use indirect methods, such as having someone stand outside a warehouse to count the lorries going in and out.

But unethical methods were not worth the risk to above-board companies. The most popular and effective illicit way of gaining information, says Schlackman, is still getting your own man into a company, or paying the accountant, or hiring a key executive. "That is what I would do, if I were in industrial espionage—which I am not."

Office told me smugly, adding that it is still not entrusting the wages to the post—the work-force is paid in cash or by direct debit.

Opting out

The younger generation in Yugoslavia thinks the ideal place to live would be Switzerland run on socialist lines. This fairly ambivalent desire has just been revealed in Borba, the Belgrade daily which speaks for the ruling League of Communists.

The paper has been remarkably frank about the results of a poll taken among 2,100 young men and women by a Marxist study centre. Fifty per cent of those questioned said they would like to live in a western country; only nine per cent opted for a communist country; and one-third were discreetly without an opinion.

When asked specifically where they would like to live purely on the basis of the social system, 31 per cent were for socialism and 29 per cent spoke out for capitalism.

This rather narrow margin, coming from a generation raised under Tito's relatively free-wheeling ideology, was described by Borba as "deeply contradictory"; since the kind of country the young people wanted just did not exist, it was essential to look for "compromise solutions." The paper might also have added that no other communist country would have published such a poll.

Post haste

Our cartoonist's notion of post delays being stopped by posting the postmen's wages appeared yesterday, to be prophetic. Just before midday the National Westminster Bank telephoned to say it had just received research material from its brokers within hours of its being posted—the same morning. What was more, the envelope had no stamp on it, and the postman requested 14p.

"We're not saying that all mail is being delayed," the Post



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The fact that the papers auctioned were the same as those formerly in the National Army Museum was spotted by Dr. Piers Mackesy, a military historian at Pembroke College, Oxford. He tells me: "The collection is very important. It would be the greatest pity if it were to be made inaccessible for some years, and worse still if it were to disappear." General Coote fought in the American War of Independence, in the West Indies and in Egypt.

Mackesy argues: "The principle of selling historical manuscripts to an undisclosed buyer seems to me to be pernicious." If a major collection, such as the Coote papers, goes abroad, a microfilm must be deposited in the British Library. But the new owner can deny anyone access for up to seven years.

The National Army Museum confirmed to me yesterday that the collection had been withdrawn by the owner, J. A. C. Sykes—as he had every right to do. Had the museum made its own microfilm? "We shall not comment on that," I was told.

Rising prices of manuscripts are inducing many owners to withdraw collections from museums and county record offices around the country to put them up for auction. When I asked Sotheby's who had bought the Coote archives, they could only answer with the word that has become so familiar in Bond Street: "Anonymous."

Gone missing

A recent happening at the National Army Museum in London demonstrates the effect the soaring value of historical manuscripts is having upon major public collections. In December, the papers of General Sir Eyre Coote (1728-1823), which had been on loan to the museum, were withdrawn by the owner and put up for auction. They were sold earlier

Rhapsody in blue

People who sell houses often engage in flights of fancy but an advertisement in the Herald Tribune for a South Wales property (asking price £100,000) takes some beating. It begins: "SWANSEA. The British Cote d'Azur. Substantial luxury residence."

For a fully detailed brochure on Corby contact K.R.P. Jones, F.R.I.C.S., Chief Estates Officer, Corby Development Corporation, 9 Queen's Square, Corby, Northants NN17 1PA. Telephone (053 66) 3535.

Corby

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ECONOMIC VIEWPOINT

The dubious case for import controls for all

IN INCREASING number of people have been asking me...

Cambridge writers threaten to reach over \$70bn in 1985...

A "sharp reduction" in Japanese exports by means not explained...

to GNP in the rest of the world outside Japan (but not incidentally...

TRADE IN MANUFACTURES table with columns for Shares of world trade in manufactures and Ratio of volume of manufactured imports to GNP.

GNP GROWTH RATES table with columns for 1965-73, 1973-75, and 1975-78.

What is wrong is the complete absence of any explanation of the malaise or any convincing reason to suppose that if the British economy is as weak as...

This is dominated by two supposedly robust and persistent tendencies: the increase of the U.S. current deficit and the obstinately growing Japanese current account surplus.

The programme differs in several important respects from the conventional demands of those afraid of world recession.

(1) That the trends of the last two decades will continue and that normal price mechanism adjustments through exchange rate changes or differential wage growth are powerless to stop them.

But until recently there has been a more basic objection to a whole Cambridge method analysis. Just as Lenin spoke of "socialism in one country" the Cambridge analysis started off as economics for one country.

In the "worst case," with balance of payments equilibrium achieved by so-called U.S. "deflation," growth in the non-Communist world declines from a 5 per cent per annum average in the 1965-73 period to just over 2 per cent in 1978-85 with just to cheer us up, the U.S. national product falling on average by over 1 per cent a year.

A third subsidiary assumption is that capital flows can play no major role in balancing world payments. This is maintained despite the fact that in 1978, net long-term capital exports from Japan offset some three-quarters of that country's current surplus.

The obvious source of doubt about the whole Cambridge diagnosis is the attempt to build iron laws on the experience of 1961 to 1978. This is a very short time indeed in modern economic history.

that they might have made an opposite diagnosis in the earlier postwar years by referring to the supposed dollar shortage of that period. At that time economists of a "structuralist" bent made exactly the same points...

The country which is now led upon to initiate the move import controls is the U.S. which had a current account deficit of nearly \$20bn in 1978—effect which according to the

ideal policy measures prescribed by the Cambridge Group are import restrictions by the U.S.—together with a few other structurally weak countries such as the UK, and

indeed, the Cambridge authors themselves recognise

Cambridge case is the old "dollar shortage" argument based on its head.

On the other hand a great deal that is puzzling in the Cambridge figures disappears if one takes the view that the growth of output is much more supply constrained than it is demand constrained.

Letters to the Editor

Little faith

Equity in homes

Building labour

Bacon and the MCA system. The General Secretary, Association of Professional, Technical, Clerical and Typewriter Staff.

Party's election fund and found it interesting to compare this with amounts that the UK brewing industry is reported to have donated to the Conservative Party.

should make a fixed annual contribution to the capital costs of the road programme; that purchases "ready availability," a valuable commodity.

ing Association centenary gala, Wembley, London. Overseas: International Energy Agency governing board meeting in Paris, reviews plan to cut oil consumption by 5 per cent.

Revenue from invalids. From Mr. J. Shaffner. Sir—If an employer arranges a group health scheme for his employees, the premiums are usually allowed as a business expense and so are offset against corporation tax.

From the Joint Chairman, Conference of Private Residents Association. Sir—In his report (March 26) on Gibson v City of Manchester Justinian asks whether tenants should have "positive rights, powers and responsibilities over premises which, after all, are their homes for life."

From the Director, Federation of Associations of Specialists and Sub-contractors. Sir—Mr. D. Brown (March 23) is right to warn against possible dangers inherent in a move towards construction industry registration.

ing Association centenary gala, Wembley, London. Overseas: International Energy Agency governing board meeting in Paris, reviews plan to cut oil consumption by 5 per cent.

Brewers' gifts to Tories. From Mr. C. Mitchell. Sir—I read with great interest that the Transport and General Workers' Union is to donate £150,000 to the Labour

Roads and taxes. From Mr. D. Lindsay. Sir—Dr. Potter's logic (March 21) is no easier to follow than his economics. The losers from the suggested changes in the car licence and fuel taxes will overwhelmingly be country people.

The housing Bill. From Mr. R. Jensen. The description "election window-dressing" attributed to the Conservatives in respect of the Government's Housing Bill (your report, March 23) is certainly justified in the context of the security of tenure provisions for council tenants.

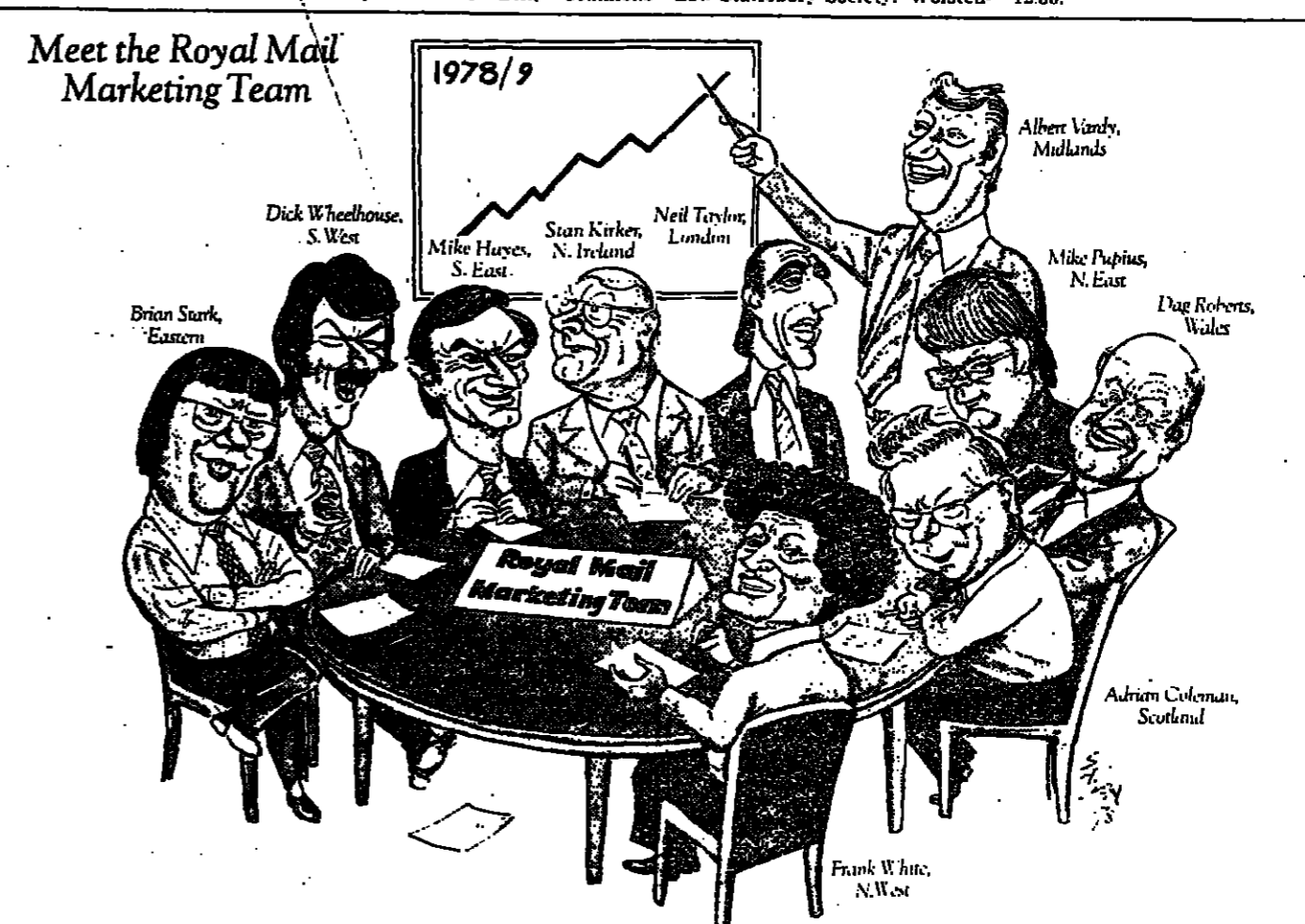
Advertising on the BBC. From Mr. R. Brooks. Sir—I fully support the letter from Mr. R. Ernest (March 15). The local radio station—BBC not commercial—in my area is Radio Medway and it regularly includes the promotion of special trips by British Rail.

Today's Events

GENERAL: UK: Edge Hill, Liverpool, by-election. National Housebuilding Council statement on prospects for 1979.

Today's Events

amendment, Caravan Sites Bill, committee. Cinematograph Films (Limits of Levy) Order.



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UK COMPANY NEWS

New-style 'Pru' lifting dividend by 20% to 8p

PROFITS IN 1978 up by 29 per cent and a 20 per cent increase in dividend are the main features of the first report of the Prudential Corporation—the new style holding company of the Prudential Group of companies.
Profits for the year amounted to £41.2m compared with £31.9m in 1977. In view of these excellent results, the corporation has taken advantage of relaxations on dividend limitations given to new companies to pass on the benefits to shareholders. A final of 8.20p per share has been declared, making 8p for the year, compared with 6.84p in 1977.

HIGHLIGHTS

The swift counterbid for 51 per cent of Hudson Bay from George Weston at \$41 per share is discussed by Lex, as are slightly disappointing annual results from Schroders, solid growth from Legal and General, and a buoyant performance from Prudential Corporation. The West German banking sector's close ties with industrial companies are also considered. Other companies reported mostly encouraging results and prospects with Slough Estates, Bambergs Stores and Hanger Investments well to the fore. York Trailer and Rotork comprised the major exceptions where the combined effects of sluggish market conditions and high sterling values have taken their toll. On the bid front, Rockwell stressed that it is not prepared to raise its 115p per share offer for Wilmot Bredden.

The surplus from the life fund attributable to shareholders rose by 8 per cent from £15.9m to £17.2m. This improvement was, however, held back in 1978 by a non-recurring loss of £2.4m in Vanbrugh Life, the linked life member of the corporation. This loss occurred because of an error in the un pricing calculations and the strengthening of reserves. Overall, life premium income advanced by over 11 per cent to £761m and the surplus attributable to policyholders by nearly 13 per cent to £29m. This has enabled policyholders' bonus rates to be increased, details will be given today.

Premium income was 10 per cent higher at £394m. The underwriting result of the Prudential Assurance showed little overall change from 1977. Losses in the UK account deteriorated by £2m from adverse results on motor and liability business. The domestic account showed some improvement despite the combination of under-insurance and adverse weather conditions, but even so a loss of £4.5m on this account was recorded. There was an underwriting profit of £2m on overseas business, coming mostly from Canada, with trading conditions in Australia and South Africa remaining very difficult. The trading profit of L'Escout showed little change, a deterioration in underwriting being balanced by higher investment income. There was a large increase in business in Holland which was profitable.

L & G restructuring to meet needs of 1980s

PLANS HAVE been formulated by Legal and General Assurance Society, the second largest life group in Britain, for reorganisation of its structure.
A new company is to be formed as parent of the group and named Legal and General Group. It will not be an insurance company. Shareholders will exchange their present 5p shares in the society for 25p shares in the new company on a one-for-one basis.
Then at the second stage, it is proposed to separate the UK insurance operations, the international insurance operations and the investment management activities into three subsidiaries of Legal and General Group.
Mr. Ron Peet, the chief executive of L and G, said that the new structure should help provide the right environment for the development of the group through the 1980s. The reorganisation under a non-insurance holding company would give additional financial flexibility, and provide the opportunity to manage the group's resources more effectively through the clearer identification of the different activities in separate subsidiaries rather than through one major operating company. Shareholders will be asked to approve the first stage of the re-organisation by means of a scheme of arrangement at the AGM. The split into separate subsidiaries will come into operation in January 1980.
Pre-tax profits of the group rose by nearly 20 per cent in 1978 from £17.4m to £20.8m. Premium income on life and pensions business advanced 18 per cent to £478m. Total surplus from long-term business amounted to £76.7m compared with £56.4m in 1977. Out of this amount £50.8m has been allocated to policyholders' bonuses, £9.3m to shareholders and £6.6m carried forward. The shareholders' allocation has been raised by 13 per cent over the 1977 figure.
Premium income on general insurance business increased by just over 6 per cent to £31m, but the underwriting loss rose sharply to £5m against £3.9m in 1977. The UK account showed a marginal loss after a release of £2m from provision for unearned premiums. Elsewhere the results were poor, particularly so in Australia with a loss of £2m, France and Spain.
Investment and other income was nearly 30 per cent higher at £20.3m compared with £15.9m. The tax charge in 1978 rose significantly to £5.7m compared with £4.2m in 1977, where unchanged at £20.0m.
Terminal bonuses, payable on death or maturity claims, are increased to 30 per cent of attaching bonuses for whole life and endowment contracts and to 25 per cent for the cashbuylife plan. The bonus rate on executive pensions is increased from 25 per cent to 30 per cent. First place the tax charge has dropped from 44 per cent to 30 per cent, a result of beneficial bunchings of industrial building allowances, deferred tax benefits, and Slough's ability to shelter itself to a degree from overseas losses. Secondly, the ratio of pre-tax profits to gross rental income has begun to rise to 47 per cent from under 46 per cent after several years of decline. Slough is to revalue its properties this year, probably in time for the next preliminary figures. Since the UK properties were last valued three years ago in a depressed market, and the Canadian properties even before that, the potential return is considerable. No wonder the market is not deterred by a yield of less than 2 1/2 per cent.

Slough Estates exceeds £8.2m

ON HIGHER rental income at home and overseas, Slough Estates, property developer, lifted taxable profit in 1978 by £1.26m to a record £8.23m with a £0.62m advance in the second half.
New lettings, reversions and rent reviews expanded UK rental income from £10.87m to £12.76m and overseas rental income was £0.53m higher at £4.57m.
Record profit was forecast at half-time when the surplus was ahead to £3.79m (£3.15m). The company is now predicting another good year in 1979.
Tax in 1978 took £2.44m (£3.41m) leaving stated earnings per share 1.59p better at 6.21p. Also as forecast, the net total dividend is stepped up to the maximum permitted to £2.2925p (2.265p) by a 1.55p scrip issue, a one-for-two scrip issue is proposed.

Manders nears £3.5m

THE TREASURY has approved a 30.4 per cent increase in the dividend of Manders (Holdings), which turned in taxable profits of £3.44m in 1978 against £2.37m last year.
Turnover of this paint and printing ink manufacturer advanced from £24.07m to £28.2m.
The improved results are principally due to the increased turnover and restored margins of the decorative division. UK ink operations were maintained at the improved levels, and the industrial finishes division doubled trading profits.
Overseas ink operations were less satisfactory, the directors say.
After tax of £1.06m (£0.8m), stated earnings per 23p share are higher at 15.82p (11.9p). The total net dividend is stepped up from 2.5425p to 3.314p, with a 2.41p final.
A breakdown of turnover shows UK trading operations at £24.41m (£20.24m), and overseas £3.8m (£3.83m). Taxable profit is shown as to UK trading £2.66m (£1.6m), overseas £0.3m (£0.33m) and UK property £0.48m (£0.44m).

Royal Worcester back on expansion path with £2.7m

GROUND LOST 12 months earlier by Royal Worcester, pottery and electronics components group, was more than regained in 1978. Taxable earnings soared from £1m to £2.68m, bettering its previous best by some £430,000, with each of the main operating companies showing improvement.
Advance was forecast at mid-year when the surplus climbed from £553,000 to £936,000.
Sales for the year were up £5.13m to £38.31m, with Royal Worcester Spode turnover ahead from £20.6m to £23.58m, and Welwyn Electric's £1.85m higher at £12.5m.

After tax of £0.97m (£0.35m) the group's earnings per 25p share are stated 17.9p higher at 35.8p. A net final dividend of 4.734p raises the total to 7.134p (£6.388p).

Operating profit	1,702	2,347
Spode	2,023	1,584
Industrial ceramics	469	391
Welwyn Electric	1,210	884
RWS abnormal costs	—	—
Central expenses	237	222
Interest	487	212
4% inc. RWS	2,880	1,000
Pre-tax profit	468	553
Tax	1,723	847
Extraord. lost	138	647
Attributable profit	1,386	597
Dividends	490	385

But the old vulnerability to changing market conditions and fluctuating exchange rates remains. In a relatively volume sensitive business, sales in the US fell by 15 per cent. And while U.S. sales increased substantially over last year's poor results, the sinking dollar neutralised much of the benefit. The acquisition of a 45 per cent minority interest in its important Royal Worcester subsidiary has proved expensive—Worcester took on an additional £2.9m in short and medium term facilities at a time when its net interest costs were rising rapidly—although the rewards are expected to come through in the long term. Full control of RWS will enable Worcester to improve its overseas marketing and increase its narrow margins. The share price remained unchanged at 172p, giving a yield of 4 per cent and a p/e of 6.1 on stated earnings.

Comparatives have been adjusted for a change in the treatment of deferred tax to accord with accounting standard No. 15.
Attributable profit emerged at £1.59m (£847,000) after an extraordinary loss this time of £138,000 on sale of property.

Bentima increases to £165,000

Pre-tax profits of Bentima Industries, watch and clock importer and precision instrument manufacturer, increased from £150,000 to £165,000 in the six months to December 31, 1978. Group sales revenue rose from £3.02m to £3.96m.

The directors anticipate profits for the first six months of 1979 will be ahead of the same period last year.
They add that trading in the period under review was generally in line with expectations. Further substantial orders have been received in the engineering companies.

Davall, a subsidiary, has agreed with the Department of Industry to develop certain innovative printed circuit boards with support of Government funding scheme.
Tax for the period takes £88,000 (£90,000). Figures include Standard Industrial Holdings from July 1, 1978.
It was announced in September that the next accounts would be made up for the 18-month period to June 30, 1979, to bring the year-end of the company and its principal subsidiaries into line. In the 1977 year, taxable profits were £266,000.

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Dispute-hit York Trailer slumps to £1.15m, but pays maximum

INDUSTRIAL DISPUTES inside and outside the group hit the profits of York Trailer Holdings. The taxable surplus for 1978 slumped from a record £2.74m in 1977 to £1.15m, down from £36.2m to £32.2m. But the maximum permitted dividend is being paid.

The directors say the biggest single cause of the earnings drop was the go-slowl for nearly all the final quarter at the Anthony Carrimore plant in Co. Durham. The group was also badly affected by the lorry drivers' strike and two "disastrous" months in November and December led to a final quarter loss.

Exports dropped from £14m to £8.5m, almost entirely due to a loss of markets in Turkey, Nigeria and Iran. The board adds that the haulage strike wrecked January business and profits and its aftermath was felt into February. Although the company returned to profit in March the directors say it is doubtful that the group will break even in the first quarter. However despite the bad start they say that the year's earnings should exceed those of 1978.

On the brighter side there is an improvement in export to Europe and the group is looking for a rapid build-up of profits from its new Illinois U.S. operation which started production on March 1. The board says it is looking for further opportunities for expansion through acquisition in the U.S. expected to begin in the next few months. Further substantial orders have been received in the engineering companies. Davall, a subsidiary, has agreed with the Department of Industry to develop certain innovative printed circuit boards with support of Government funding scheme. Tax for the period takes £88,000 (£90,000). Figures include Standard Industrial Holdings from July 1, 1978. It was announced in September that the next accounts would be made up for the 18-month period to June 30, 1979, to bring the year-end of the company and its principal subsidiaries into line. In the 1977 year, taxable profits were £266,000.

eventually comes into line with EEC maximum weight specifications, the company should really cash in on demand for new trailers. For the moment the main problem is Anthony Carrimore where profits turned around from more than £300,000 in 1977 to a loss of £550,000 last year. Both Carrimore and the trailer side have lost out badly in export markets and it will take time to recoup the damage.

FEB Int. advances to £0.53m

RECORD PROFITS are announced by FEB International, the chemical and fixing device group. The taxable surplus for 1978 was up £206,000 to £527,000 on turnover ahead from £9.7m to £10.36m.

At the half-way stage when the group advanced from £133,000 to £204,000 the directors reported a steady increase in trading in the latter months. Tax for the year takes £208,000, against £174,000, leaving net profit up from £147,000 to £234,000. The surplus on the disposal of three holders' merchants added £121,000 to after tax profits last time. The final net dividend of 1.21p per 10p share lifts the total from 1.76p to 1.947p. Stated earnings are up from 3.22p to 4.91p.

Static half pegs growth at Thurgar

WITH virtually all the increase coming at the interim stage, with profit at Thurgar Bardex, maker of plastic products, rose from £208,000 to a record £449,000 for the 52 weeks to December 30, 1978. Turnover was up at £5.68m compared with £4.84m in 1977.

When reporting profits ahead from £38,675 to £221,794 for the first 24 weeks, the directors said the board wishes to conclude the agreement with the Department of Environment by not later than April 30, 1979. Mr. Abbott added: "This step will ensure that, together with the termination of its contingent liability, the Department should, through a placement of its "E" preference shares, obtain approximately a 70 per cent profit on its investment in our company." All institutional shareholders of "E" preference shares are planning to convert into ordinary on the next conversion date, which is next Tuesday.

Subject to the Department of the Environment's agreement to effect a similar conversion with its holding of "E" preference shares, an early capital reconstruction programme will then take place which Mr. Abbott said: "We believe will be in the best interest of all shareholders." An announcement is expected shortly and any reconstruction will be followed by an EGM to obtain shareholders' approval. The group is also considering two options, and after the meeting Mr. Abbott indicated that the reconstruction might be followed by a rights issue, depending on market conditions.

First-half increase by Beckman

FOLLOWING a downturn from £37m to £33m in the previous full year, taxable profits of A. Beckman, converter and merchant of fabrics, increased from £0.87m to £1.06m for the six months to December 31, 1978, on turnover of £8.68m against £8.01m.

Mr. S. Beckman, the chairman, says the company has maintained its momentum into the second half and he looks forward with some confidence to a continuation of this trend. From stated half-yearly earnings of 4.867p (4.07p) per 10p share, the net interim dividend is lifted from 1.77p to 1.95p and the maximum permitted total is forecast—last year's payments totalled 4.89p. Tax took £550,140 (£459,930) giving net profits up from £414,626 to £508,001. The interim dividend absorbs £198,640 (£180,804).

Progress for FC Finance

ALTHOUGH second-half profits did not reach the level of the first six months, P. C. Finance finished 1978 with pre-tax surplus well ahead from £1.13m to £1.83m, on turnover of £56.59m against £42.6m.

First-half profits jumped from £408,000 to £940,000, but the directors warned that it was unlikely that this profit level would be maintained in the second six months. Profits would be affected by increased money costs and the re-introduction of the Bank of England supplementary special deposit scheme, they said. Stated yearly earnings rose from 8.2p to 11p per 25p share, while a final dividend of 1.1p brings the net total to the maximum permitted 2.2p (2p).

Interest took £4.63m (£4.55m) and tax charge was up from £0.52m to £1.02m.

Associates' results boost Schroders

BANKING AND insurance profits of Schroders were lower in 1978. However, some growth by the parent company and a sharp recovery in the share of associates results enabled the group to finish the year with a £1.44m jump in net total disclosed profit to £4.94m.

After minority interests and transfers to inner reserves the banking and insurance subsidiaries profit came out at £3.85m against £4.4m, while Schroders Limited and the non-banking companies lifted their contribution, after minorities, by £216,000 to £297,000. The biggest gain came from the upturn in the share of associates from an £388,000 loss to £592,000 surplus and a £674,000 share of those companies' extraordinary surplus on the sale of investment properties in the UK and France. The associated companies' recovery reflects a significant reduction in the loss at the 50 per cent-held Bermuda-based Property Holdings International which, as already announced, is being disclosed. The disclosed group profit is shown after interest on loans after tax and minorities, up from £793,000 to £1.14m. A net final dividend of 9.7746p per £1 share lifts the total to 12.7746p (11.5679p) including an additional 0.1278p paid with the 1978 interim. At year end the group's liquid assets were up from £423m to £655m and loans and advances amounted to £574m (£506m). Deposits, other accounts and inner reserves were higher at £1.25m, against £944m. See Lex

To the holders of The Burmah Oil Company, Limited 5 1/2 % Dollar Bonds Due 1988 Convertible into registered Ordinary Shares of The "Shell" Transport and Trading Company, Limited NOTICE IS HEREBY GIVEN pursuant to the conditions of the said Bonds and Section 4.06 of the Indenture dated as of 1st October 1968 between The Burmah Oil Company, Limited, and Morgan Guaranty Trust Company of New York that the "Shell" Transport and Trading Company, Limited ("Shell"), has announced its intention, subject to the approval of an Extraordinary General Meeting of the members of "Shell" to be held on 17th May 1979, to make a 1-for-1 capitalisation issue of Ordinary Shares to its Ordinary Shareholders. The proposed record date for the aforementioned issue is to be 12th April 1979. A notice pursuant to the conditions of the said Bonds and Section 4.07 of the aforementioned Indenture, setting forth any adjustment to the Conversion Rate (as defined) arising from the "Shell" capitalisation issue, will be issued by The Burmah Oil Company, Limited, following the implementation by "Shell" of its proposals. Such adjustment will be applied retrospectively in accordance with the terms of the Indenture. The Burmah Oil Company, Limited. Registered Office: 48, St. Vincent Street, Glasgow. 22nd March 1979.

ARTHUR BELL & SONS LIMITED

SCOTCH WHISKY DISTILLERS, PERTH

INTERIM FINANCIAL STATEMENT (UNAUDITED) FOR THE HALF-YEAR ENDED 31ST DECEMBER, 1978

Half-year ended 31st December, 1978	Half-year ended 31st December, 1977	
£000's	£000's	
Group Turnover—excluding inter-company sales ...	103,919	86,229
Scotch Whisky Division	94,977	78,403
Glass Container Division	8,748	7,748
Transport Division	198	78
	103,919	86,229
Group Trading Profit	10,286	9,273
Less: Depreciation—See Note 1 ...	673	491
	9,613	8,782
Add: Investment Income	3	4
	9,616	8,786
Less: Interest on loans	942	1,013
Group Profit before Taxation	8,674	7,773
Scotch Whisky Division	7,812	6,971
Glass Container Division	860	832
Transport Division	2	(30)
	8,674	7,773
Taxation	2,816	2,171
Group Profit after Taxation	6,138	5,602
Earnings per share—See Note 2 ...	13.23p	12.09p

The Directors have declared an Interim Dividend for the year to 30th June, 1979, on the Ordinary Share Capital enlarged by the recent Scrip Issue of 1.76785p per Ordinary Share (1.60714p) absorbing £821,624 (£746,938). The Interim Dividend will be paid on 4th June, 1979, to Ordinary Shareholders on the Register at the close of business on 10th May, 1979. A Preference Dividend amounting to £7,700 (£7,700) was paid in the six months period to 31st December, 1978.

Note 1 No depreciation has been provided on Freehold Heritable Properties because the Board considers that such Properties currently have a value in excess of that in the Balance Sheet.
Note 2 The calculation of Earnings per share for the Half-year ended 31st December, 1977 has been adjusted to reflect the recent Scrip Issue.

Drake & Scull chief confident

Shareholders of engineering group Drake and Scull Holdings were told by the chairman Mr. Michael Abbott at yesterday's annual meeting that higher profits and dividends are in prospect for the current year. Mr. Abbott said: "Current trading, both in respect of volume and profitability, is at a most satisfactory level, and prospects for the year in total are encouraging. In overall terms, backed by good cash resources, your board views the future with confidence, and is planning for the achievement of higher profits and dividends in the current financial year."

DIVIDENDS ANNOUNCED

Company	Date	Current	Corre-	Total	
		payment	sponding	last	
			year	year	
Bambergs	1.27	June 5	0.55	2.22*	1.02*
Barton & Sons	1.87	—	1.72*	3.07	2.78*
A. Beckman	1.38	May 31	1.77	4.96	4.88*
R. Cartwright	2.56	May 11	2.18*	4.06	3.84*
Feb Int	1.21	May 17	1.1	1.95	1.76
F.C. Finance	1.1	—	1	2.2	—
Hanger Invs.	0.5	—	0.46	0.5	0.46*
Legal and General	4.253	—	3.96	6.51	5.72
Manders	2.41	May 4	1.72	3.31	2.54
Prudential Corp.	5.26	May 24	4.2	8	6.71
Rotork	0.86	May 25	0.6*	1.31	1.18*
Royal Worcester	4.73	May 11	4.21	7.13	6.39
A. C. Stanley	2.9	—	2.29*	4.9	—
Thurgar Bardex	0.46	May 2	0.48	0.78	0.88
Samuel Proprs.	1.1	July 2	—	—	2.35
Schroders	9.77	May 11	8.44	12.77	11.57
Sharna Ware	1.66	—	1.41	2.66	2.4
Slough Estates	1.53	—	1.52	2.53	2.27
Stag Furniture	4.2	May 31	2.8	6.5	4.8
York Trailer	1.2	July 2	1.07	2.39	2.14

Dividends shown pence per share net except where otherwise stated.
* Equivalent after allowing for scrip issue. † On capital increased by rights and/or acquisition issues. ‡ Includes 0.00881p for tax change. § Includes additional 0.058p for 1977.

CEMENT-ROADSTONE HOLDINGS LIMITED RIGHTS ISSUE OF ORDINARY SHARES

Owing to the current postal problems in London and the South East of England and in Ireland, shareholders in the United Kingdom may not be able to ensure that Provisional Allotment Letters and cheques sent through the post are received by Bank of Ireland by 3.00 p.m. on 30th March, 1979.
Ordinary shareholders who wish to subscribe for the new shares to which they are entitled and who are in any doubt that their documents will be received by Bank of Ireland by that time should make arrangements with their own bank manager or stockbroker to telephone Bank of Ireland and to arrange for payment to be made direct to Bank of Ireland, City Office, Woolgate House, 25 Coleman Street, London EC2R 5BT, of the amount payable on acceptance not later than 3.00 p.m. on 30th March, 1979. They should also forward the provisional allotment letter without delay to Bank of Ireland at the above address.
Information regarding the entitlements of Ordinary shareholders may be obtained from Bank of Ireland at the above address (telephone 01-600 3063 extension 40).

Re for

MINING NEWS

BIDS and DEALS

UK COMPANY NEWS

Union Corpn. is set for another good year

BY KENNETH MARSTON, MINING EDITOR

A CONFIDENT view of this year's prospects for Union Corporation, the South African mining financial and industrial group which is controlled by General Mining, is expressed in the annual report by the chairman, Mr. Ted Pavitt.

is expected in November, while the R200m uranium-gold Beisa Mines is due to start up in 1982. Presumably, Union Corporation shareholders will be given preferential treatment in the proposed eventual offer of Beisa shares.

Rossing's progress

ROSSING URANIUM, the Rio Tinto-Zinc group's mine in Namibia (South West Africa), is likely to resume full production within the next month.

plant or with existing equipment, production this year could move up closer to 5,000 tonnes, bringing within reach a target which was first set for 1978.

ROUND-UP

Patina, the Netherlands-based group with extensive mining interests in Canada and Brazil, announced net income of \$8.65m (£4.2m) for 1978, against \$9.7m in 1977.

Extel's major expansion move

Exchange Telegraph Company (Holdings), the information and printing group, has bought Wignmore Holdings, which owns Royds Advertising Group, for £5m in cash and shares.

ings in its last balance sheet. Its profits rose from £226,000 in 1978-79 to £1m in 1977-78.

Stag's 68% profit rise: steps up dividend by 35%

FOR THE year 1978, Stag Furniture Holdings achieved an increase in profits of 68 per cent to £2.25m and has received Treasury permission to raise its dividend by 35 per cent.

BOARD MEETINGS

Table listing board meetings for various companies including British Sugar, Barmans Investments, etc.

ability for payment can be foreseen and the comparative figures for 1977 have been restated.

OIL AND GAS NEWS

Texaco-Canada to spend \$25m

A CONSORTIUM of Canadian oil companies, with Texaco-Canada as operator, are to go ahead this summer with the drilling of an exploration well off the Newfoundland coast.

depth. That well was recently drilled offshore Spain in a water depth of 1,326 metres (4,352 feet).

This summer, which is estimated to be in the region of C\$200m. This compares with roughly C\$350m spent on offshore drilling programmes over the previous 15 years.

36 companies wound-up

Orders for the compulsory winding up of 36 companies were made by Mr. Justice Vinelott in the High Court. They were:

Leonard Green (Midlands), Adonwhite Promotions, Gattelle (Engineering and Maintenance), R. J. Bowditch and Son (Hants.), Antryno.

City and Intl. Trust progress

Franks income of City and International Trust advanced from £362,522 to £429,871 in the six months to February 28, 1979.



Notice of Meeting

Notice is hereby given that the 138th annual general meeting of United Kingdom Temperance and General Provident Institution will be held at the Guildhall, Salisbury, on Wednesday, 16th May, 1979, at 12 noon for the following purposes:-

- 1. To consider and adopt the report of the directors and the accounts for the year ended 31st December, 1978.

By order of the Board S. V. FINN Deputy General Manager (Property) & Secretary 14th March, 1979

Abwood sees substantial improvement

The directors of Abwood Machine Tools are confident that results for the current year will show substantial improvement over the previous year, when £42,000 pre-tax profits were achieved.

ASSOC. FISHERIES ACCOUNTS ON WAY

THE 1977-78 accounts of Associated Fisheries, postponed pending its further investigation of fishing operations in Australia, will be released to shareholders by April 20, the company states.

Hoveringham purchases

Hoveringham Group, the building materials concern, has purchased two companies, Leas Supply and Allerton Transport, in a cash share deal worth in total £850,000.

ETAM CONFIRMS APPROACHES

ETAM, the privately owned womenswear fashion chain, confirmed yesterday that it had been approached by a number of potential suitors including Coles English Stores.

VICKERS BUYS BRISTOL AEROJET

The company, which develops and manufactures rocket motor casings, was previously owned by R.R. Realisations (formerly Rolls-Royce) and the Aerojet-General Corporation of California.

SYDENHAM/ICFC

Industrial and Commercial Finance Corporation has advanced £95,000 to Sydenham and Company Holdings to effect the acquisition of the Tabular Group of Companies.

MILLS & ALLEN

Mills and Allen International, advertising contractors and foreign exchange brokers, has acquired Savage and Heath, the foreign exchange and currency deposit business, in a £700,000 deal.

NO PROBE

The proposed mergers between the UK interests of the Eaton Corporation and the UK interests of Cutler Hammer and Incorporated and Royal Insurance Company/Aachenner and Muenchener Versicherung are not to be referred to the Monopolies Commission.

BOC PAYMENT

Pursuant to the terms of the agreement for the acquisition of Software Sciences International, BOC Payments has paid an additional £1,308,323 to be satisfied by the issue of 1,557,072 ordinary shares and cash.

SHARE STAKES

Guthrie Corporation—M and G Investment Management has acquired a further 45,000 ordinary shares of Baring Brothers purchased 50,000 ordinary on March 27 at 537p for their own account.

DAWNGRANGE

The takeover offer by Dawngrange for Jacksons Bourne End has closed, leaving Dawngrange with a 58.7 per cent stake in the group.

IN BRIEF

AUTHORITY INVESTMENTS—Profit £30,803 (£29,954), before tax £312 (£4,940). Exceptional exchange loss on foreign loan repaid £2.25 (release of part of exceptional provision £54,440).

FOOD BROKERS' U.S. VENTURE

THE FOOD BROKERS company yesterday launched a new venture to provide European manufacturers an inroad into the competitive but lucrative U.S. grocery market.

AA medal for safety device

QUINTON Hazell Automotive has won the Automobile Association's national motoring award gold medal for 1978 for its Undercar safety device, designed to reduce the severity of impact should a vehicle run into, and help the level of the rear platform of heavy lorries.

Record Profits and Turnover A. Beckman Limited Interim Results (Unaudited) for the six months ended 31st December 1978

Handwritten signature or mark at the bottom of the page.

INTERNATIONAL COMPANIES and FINANCE

NORTH AMERICAN NEWS

Bank of Montreal calls off Bankers Trust deal

BY OUR FINANCIAL STAFF

ANKERS TRUST, the eighth largest U.S. bank, and Bank of Montreal, have failed to reach agreement on the sale of 80 Bankers Trust branches in New York to the Canadian concern. The deal, which would have involved the transfer to Bank of Montreal of some \$1bn of retail banking assets and would have given the Canadian bank significant foothold in the New York retail banking market, ended on the question of Bankers Trust's credit card business.

Social maintains home output

AN FRANCISCO — Standard Oil California (SOCAL) said in its annual report that it expects to maintain domestic oil production "at least at current levels" over the next few years and plans to increase domestic natural gas production capacity in 1979.

Ashland Oil increases dividend

NEW YORK — Ashland Oil is creating its dividend from 40 cents to 50 cents a share, payable June 15 to shareholders on record at May 21.

Judge rules on letters of credit

By Stewart Fleming in New York

A NEW YORK State supreme court judge has ruled that two of the world's leading international banks cannot be prevented from meeting their commitments under letters of credit to the Iranian government, even though the agreements were entered into before the collapse of the Shah's regime.

COMPANHIA Vale do Rio Doce (CVRD), Brazil's giant State minerals conglomerate...

COMPANHIA Vale do Rio Doce (CVRD), Brazil's giant State minerals conglomerate and the country's major single exporter, suffered a drop in profits in 1978. The 1977 net profit of Cr 1,640m (\$51.5m) dropped to Cr 951.6m (\$43.2m) in 1978, while circulating liabilities totalled \$360m and long-term liabilities \$626m.

EUROBONDS

Firm improvement in dollar sector

BY FRANCIS GHILES

PRICES OF seasoned dollar bonds, underpinned by a steady U.S. dollar, improved by about 1/2 of a point across the board yesterday in mostly professional dealing.

In the sterling sector, prices of seasoned issues moved up during the morning but profit-taking pushed them down in the afternoon. However, on the day, they were about 1/2 of a point higher.

Pulp venture hits CVRD

COMPANHIA Vale do Rio Doce (CVRD), Brazil's giant State minerals conglomerate and the country's major single exporter, suffered a drop in profits in 1978. The 1977 net profit of Cr 1,640m (\$51.5m) dropped to Cr 951.6m (\$43.2m) in 1978.

MEDIUM-TERM CREDITS

Republic Steel raises \$36m

By Our Euromarkets Staff REPUBLIC STEEL OF THE U.S. has signed a \$36m revolving credit and medium-term loan in London, for over eight years, obtained from a group of international banks.

FT INTERNATIONAL BOND SERVICE

The list shows the 200 latest international bond issues for which an adequate secondary market exists. For further details of these or other bonds see the complete list of Eurobond prices published closing prices on March 28

Table with columns: DOLLAR RAIGHTS, JUTSCHE MARK RAIGHTS, MISSTRAIC RAIGHTS, EN STRAIGHTS. Includes columns for Issued, Bid, Offer, Change on day, and Yield.

Cities Service write-down

TULSA—Cities Service said its 1978 net profit was reduced to \$118m or \$4.27 a share from the previously reported \$202.5m or \$7.32 a share because of a change in income from a write-down of investment in its industrial chemicals complex at Cornersville, Tennessee.

Federal move in Sears suit

WASHINGTON—The Justice Department has filed in the Federal Court seeking dismissal of an anti-discrimination suit brought by Sears Roebuck.

Eastman Kodak

Eastman Kodak expects to spend \$609m this year on capital expansion compared with \$442m in 1978, the company said in its annual report.

Federal move in Sears suit

WASHINGTON—The Justice Department has filed in the Federal Court seeking dismissal of an anti-discrimination suit brought by Sears Roebuck.

Gamble-Skogmo

Gamble-Skogmo is raising its quarterly dividend from 35 cents to 37 cents a share, payable April 30, Reuter reports from Minneapolis.

Advertisement for FENOSA FUERZAS ELÉCTRICAS DEL NOROESTE, S.A. featuring a large logo and text: 'TERM LOAN \$8,000,000,000' and 'CHASE MERCHANT BANKING GROUP'.



BANCO DO BRASIL S.A.

CONSOLIDATED AND CONDENSED COMPARATIVE STATEMENT OF CONDITION
IN MILLIONS OF U.S. DOLLARS

Table with 5 columns of financial data (Asseis, Liabilities, TOTAL ASSETS, etc.) for Banco do Brasil S.A. from 1977 to 1978.

The figures shown above are the conversion of Cruzeiros into U.S. dollars at the rate prevailing on the respective balance sheet dates. 1978 figures comply with the new Brazilian Corporate Law (Law No. 6,404, of 15.12.76)

FOREIGN NETWORK

London, Paris, Paris-Opera, Hamburg, Frankfurt, Amsterdam, Rotterdam, Milan, Vienna, Rome, Lisbon, Madrid, Stockholm, Zurich, Geneva, Luxembourg, Brussels, New York, San Francisco, Los Angeles, Chicago, Washington, Toronto, Mexico City, Tokyo, Abidjan, Grand Cayman, Panama City, Colón, Buenos Aires, Montevideo, Ciudad Vieja, Paysandu, Rivera, Asunción, Puerto Presidente Stroessner, Santiago de Chile, Antofagasta, Concepción, Valparaiso, La Paz, Singapore, Santa Cruz de la Sierra, Cochabamba, Bogotá, Caracas, Lima, Quito, Manama-Bahrain, Tehran, Lagos and Sydney.

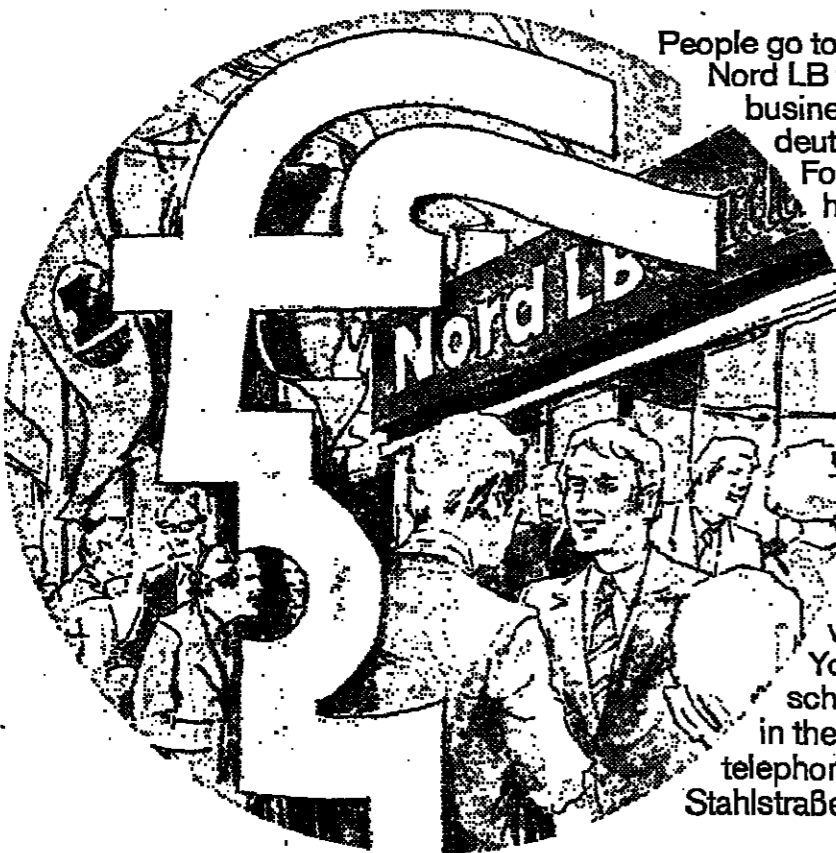
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Telex 922 073

Nord LB-Zentrum
D-3300 Braunschweig.
Tel. 0531/487-1
Telex 942 540

Norddeutsche Landesbank
International S.A.
29, Avenue Monterey
Luxembourg (0 0352) 47 23 911

Central Bank of the Lower Saxony savings banks

Sharp advance by Austrian bank

BY PAUL LENDYAI IN VIENNA

VIENNA-BASED Centro Bank, which is primarily engaged in financing East-West trade, is raising its dividend from 4.5 per cent to 6 per cent for 1978 on the back of a rise of 33 per cent in profits to Sch 5,05m (\$309,682). The bank is also increasing its capital from Sch 24m to Sch 168m.

The Board also announced that the consolidated balance sheet last year, compared to 1977 was up by 12.9 per cent to Sch 2,296m.

Speaking at a press conference after the last business year, Dr. Gerhard Vogt, the director pre-

dicted the role of compensation deals would continue to increase in East-West trade. The bank estimates the share of such compensation deals at 40 per cent of the current business between East and West. Centro Bank is also engaged in switch deals and the spokesman specifically referred to clearing arrangements between East Germany and Greece.

As a result of doubling its basic capital Centro has become the foreign bank with the largest capital in Vienna. The bank also deals in West European and North African bus-

ness but is not engaged in making commercial loans to Austrian clients if these are not connected with international trade. It was also revealed that last year the number of counterpurchase orders placed in connection with east-west trade doubled compared to 1977-78 which meant a growing burden for western exporters. The situation is made even more difficult by the trend towards finished manufactures offered by some eastern states which are particularly difficult to be marketed. In order to facilitate access for Poland to the western markets, the bank will organize a delegation of importers to Poland in mid-June. The delegation will consist of 10 to 15 importers. Dr. Vogt referred to such sectors as furniture and electrical goods offering the best business opportunities. The bank was founded here five years ago by seven banks: Bawag of Vienna, Banco di Sicilia, Banco Popular Espanol, Bank Handlowy Warszawski, Banque Occidentale pour l'Industrie et le Commerce, Kleinwort Benson, and the Bank of Tokyo.

Slavenburg's raises dividend

BY CHARLES BATCHELOR IN AMSTERDAM

SLAVENBURG'S Bank reports a slight increase in the rate of both profit and balance-sheet growth in 1978. The Rotterdam-based bank, in which First National Bank of Chicago has an 11 per cent stake, proposes increasing its dividend to Fl 21.50 per share from Fl 20.

Net profit rose by 16 per cent to Fl 34.9m (\$17.4m) compared with an increase of 15 per cent the year before. The balance sheet total also rose 16 per cent to Fl 8.6bn (\$4.3bn) at the end of the year after an increase of 14 per cent in 1977.

Profit per share rose 16 per cent to Fl 33.30 after allowing for the stock dividend paid in 1978. Shareholders may opt to take the dividend fully in cash or cash and shares. Slavenburg's share capital rose to Fl 103.7m from Fl 98.5m.

The bank's figures for the year as a whole reveal a slowdown in profit growth from the

21 per cent increase recorded in the first half.

The Unico banking group, which links the co-operative banking organisations in six European countries, has set up an investment fund with certificates listed on the Luxembourg Stock Exchange. The Unico Investment Fund has a daily quotation and has been started with an initial subscription of Dfl 20m.

The bearer share certificates, including selling commission, were offered at Dfl 52. The fund aims to invest primarily in bonds but it may purchase other securities to a maximum of 30 per cent of its assets. It is managed by Unico Investment Fund Management Company SA of Luxembourg.

The new fund is backed by the six Unico banking group members—Andelsbanken Danmark of Copenhagen, Caisse Nationale de Credit Agricole of

Rothschild head steps down

By Terry Dodsworth in Paris

M. GUY DE ROTHSCHILD is giving up overall direction of Banque Rothschild, the investment bank which lies at the heart of the traditional Rothschild family interests in France. After 30 years as president he is handing over to M. Etie de Rothschild, his cousin.

The change comes at a time of rumours of changes in the bank as a younger generation moves into positions of influence. Although M. Etie de Rothschild, at 61, is of a similar generation to M. Guy de Rothschild, who will shortly be 70, some important posts are now directed by younger members of the family.

Last year Banque Rothschild made a net attributable profit of FFf 10.2m (\$2.4m) but this was reached after making provisions of FFf 10.1m to cover depreciation on certain of its participation ventures and risks attached to its current activities. It is proposed to declare a dividend of FFf 10.50 a share.

The bank's total balance sheet amounted to FFf 10.1bn after the absorption of Compagnie du Nord, another of the Rothschild-controlled holding companies, last December. Equity funds amounted to FFf 800m and property was valued at FFf 770m.

Belgian power group ahead

By Giles Merritt in Brussels

EBES, the Societe Reunis d'Electricite du Bassin de l'Escaut, which is Belgium's second largest power company, has announced a 21 per cent increase in its 1978 net profits over those of the previous year. The company's net earnings reached BFf 3,035m (\$101m), as against BFf 2,490m in 1977 and BFf 2,150m in 1976.

With its three year 1978-80 investment programme in nuclear generation due to total BFf 2,000m, EBES has announced that it will not set prices at an increased dividend on its higher earnings. In line with its dividend policy in 1976 and 1977, the company will be maintaining its dividend on its 11m old shares of BFf 177 per share.

The dividend, payable on the 2.2m new shares issued a year ago in a one-for-five rights issue, will also stay unchanged at BFf 132.7 per share.

BEC steps up earnings

By Our Financial Staff

INCREASES IN profits and balance sheet total - are announced by Banque Europeenne de Credit, the Brussels-based consortium bank controlled by seven major European banks including in the UK the Midland Bank.

Net profits in 1978 moved up to BFf 497m (\$17m) from BFf 431m, a rise of 15 per cent, and a dividend of 12 per cent is to be paid. At the end of last year, the bank's balance sheet total had expanded to BFf 90.7bn which is 6 per cent ahead of the figure at the end of 1977. In terms of dollars, BEC's balance sheet total increased by almost a fifth.

DnC attempts to block State share purchases

BY FAY GJESTER IN OSLO

Dn NORSK Creditbank (DnC), Norway's largest commercial bank has offered to help its shareholders place their DnC shares on the open market, if for any reason they should want to sell them.

The bank's aim is to prevent sales of its shares to the state, under the provisions of the new Norwegian law to make the banks more "democratic". Its first advice to shareholders is to hold their shares, at least until legal disputes about state compensation for them have been settled.

To those who want to sell however it undertakes to secure a price at least as high as the NKr 11.10 fixed - at the moment - as the state buy back price for DnC shares.

Just now, following a favourable annual report, the market price for DnC shares is around NKr 115 (\$23). This means that few shareholders are currently selling to the state buyer, the Bank of Norway. If the market price should sag, however, DnC will try to find buyers willing to match the state price - thus establishing this price as a "floor" value for the shares. Such buyers would be running no risk - under the new law, bank shareholders can cash in their shares at the official price up to end-1980.

At the same time a group of 68 bank shareholders are currently challenging the law's constitutional position in the courts. Should they win, the state might have to pay higher compensation than the buy-back prices fixed so far.

Meanwhile, the Bank of Norway has announced details of bank shares sold to the state as of March 26. Of the country's three leading banks, Bergen Bank (second largest) tops the list, with 172,909 shares. This makes the state the bank's largest shareholder.

Bergen Bank's 1978 report announced large losses and a reduced dividend. For the other two big banks DnC and Christiania Bank og Kreditkasse the figures were only 6,173 and 7,551 shares respectively.

Swedish bank welcomes new international stance

BY JOHN WALKER IN STOCKHOLM

ANY MOVE by the Swedish government to allow foreign banks greater access to capital and credit markets in this country would be welcomed by Svenska Handelsbanken, one of the big three banks in Sweden.

This was stated at the annual general meeting of Handelsbanken by Mr. Jan Ekman, head of the bank's international activities who went on to list a number of conditions. Foreign banks would need to compete on the same terms as domestic banks and at the same time Swedish banks should be allowed equal rights to extend their business abroad, he said.

Mr. Ekman was referring to proposals put to the Swedish parliament recently by the committee appointed by the government to study Swedish banking and financial market practices. The proposals came down strongly in favour of wider banking participation in Sweden.

This appears to be the first time that a Swedish bank has welcomed foreign banks operating in Sweden. The necessity to borrow abroad has forced the Swedish authorities to introduce some temporary exceptions to the limitations in foreign exchange regulations. Thus Swedish banks are permitted to provide financing in foreign currencies to Swedish customers. As a result of this development, foreign currency lending and refinancing by Swedish banks has increased dramatically over the last five years, Mr. Ekman said.

The total volume of lending in foreign currency which the Swedish banks have made on their home market, has increased from practically nothing in 1973 to more than the equivalent of \$2.6bn at the end of 1978. At the year end, Handelsbanken's share of total Swedish lending in foreign currencies was 44 per cent.

TURKISH TEXTILES

Aiming to invade Europe

BY METIN MUNIR IN ANKARA

FASHION IS a bluff, says Mr. Vitali Arthur Hakkio, the owner of Vakko, Turkey's largest ready-to-wear clothing company who is preparing for what he calls "the biggest gamble of my life."

Next month he is putting on a fashion show in London's New Bond Street as part of a sales campaign in the ready-to-wear market where the foothold of Turkish companies is currently insignificant. Mr. Hakkio hopes that this step towards Europe can usher in a powerful new era for the Turkish textiles industry.

The ready-to-wear industry in Turkey is large enough to clothe a population of 45m. In fact Turkey is one of eight countries in the world which do not import any clothing. Its single biggest export commodity is cotton and textiles account for a quarter of all industrial exports.

Such is the strength of these industries that the Common Market, of which Turkey is an associate member, has imposed restrictions on some products in order to protect local industries.

Thus restrictive tariff barriers are imposed in order to slow the growth of Turkish sales to the EEC. However, for the moment no problems exist on "ready-to-wear" clothing. Mr. Hakkio is confident that this is one area of the Turkish clothing market that can be expanded rapidly.

Mr. Hakkio, who is an Armenian Turk, started work in 1927 when he was 14. His first job was to stand outside a clothing shop at the Mahmudpass Climb - which is still one of the biggest clothes shopping centres of Istanbul - and entice customers.

Today, Vakko, still a family concern, is now a vast business employing about 1,000 people

and planning a turnover of Turkish Lira 1bn (\$50m) this year. Apart from the ready-to-wear manufacturing plant and a chain of retail stores, Vakko manufactures 10 metres of print a year. Its stores are the plushiest and most expensive in Turkey.

Turkish manufacturers realised that unless they exported their domestic goods to other domestic markets, Turkish industrialists are now trying hard to export, even at a loss.

Other prominent companies in ready-to-wear clothing like Beymen and IGS, are also selling to Europe. The low-cost element and high quality may, over the years, make these companies major sellers to Europe. "I can tell you we are late," says Mr. Hakkio. "We should have been there years ago."

Handwritten text in Arabic script.

MALAY-DESIGNATED AGENCIES

State raises financial stake by 60%

BY WONG SULONG IN KUALA LUMPUR

MALAYSIAN Government increased the financial allocations to its "Malay-designated agencies" by 60%...

Economic Development Corporations (SEDC). Under the third Malaysia plan (1976-1980), these five groups were allocated a sum of 1,372m Ringgit...

Since it was launched a year ago, it had invested more than 50m Ringgit in shares, and currently it is a major shareholder in such companies as Sime Darby, Kuala Lumpur-Kepong, East Asiatic Malaysia, and Malaysian Tobacco Company...

its allocation increased from 217m Ringgit to 300m Ringgit. Its biggest project is the development of a 200m Ringgit commercial complex in Kuala Lumpur, planned to include a 60-storey international trade centre.

businessmen, has received the relatively small increase in allocation of 315m to 338m Ringgit. The Malaysian Ministry of Trade and Industry has approved foreign investments in Malaysia totalling 159.4m Ringgit so far this year...

Merlin rises faster growth rate

Our Kuala Lumpur correspondent reports that MERLIN, the Malaysian hotel and property group, has had a 20 per cent rise in its profits to 2.8m Ringgit (\$1.27m) for the first half of December.

Email returns to negotiation

BY JAMES FORTH IN SYDNEY

THE STRUGGLE for control of the white goods maker, Kelvinator Australia, moved from the sharemarket to the negotiating table yesterday after the disclosure that Simpson Pope Holdings was the mystery buyer which had been contesting Email in the market.

Explaining their actions, the Simpson Pope directors said that their company and Kelvinator had had a close association over a long period and had been implementing a programme of product rationalisation when it became apparent about six weeks ago that there had been increased levels of share turnover in Kelvinator.

recent days. It appeared that rival bidders were endeavouring to gain a strategic position and had pushed the share price to levels which the directors believed to be unrealistic. They said that Email had foreshadowed a partial offer of A\$2.30 cash for up to 50 per cent of the capital but, unless, and until, it materialised the directors felt unable to comment other than to say that it would appear to be discriminatory and would not treat all shareholders equally.

then make a bid at whatever price level they wished. However, some observers believe Email and Simpson Pope will try to obtain a compromise involving a joint offer to acquire the remaining shares in Kelvinator at a price above that originally offered by Email, but below the heavy levels touched during the market battle.

Parent vs upturn

THE major Japanese investment credit company, which has had its parent company profit in the year to end rise 12.4 per cent to 10.2 (\$24.78m) from 9.1 (\$21.45m) a year before, Reuter reports Tokyo.

Trust Bank recovery under way

BY JIM JONES IN JOHANNESBURG

TRUST BANK, the South African general bank which is slowly recovering from its problems of two years ago, has revealed a 90 per cent profit improvement to R1.5m (\$1.77m) compared to R757,400 for the six months to December 31, 1977.

ing company Bankorp absorbed the bulk of the declared first-half profit. Effectively, Trust Bank's hidden reserve base had shown little or no growth since 1972, meaning that for at least the next three years all profits not needed to service the preference shares will be directed into reserves.

cost of new funds has been cut by a considerable narrowing of the gap in interest rates on the bank's negotiable Certificates of Deposit. The interim report points out that earnings on the bank's large property portfolio have shown no noticeable improvement, while financing of the property portfolio has still to be re-formulated.

JAPANESE SHIPBUILDERS' ANNUAL DIVIDEND

Table with 2 columns: Shipbuilding company and Dividend (yen per share) for 1978-79 and 1977-78.

FVB portfolio changes boost turnover

BY JIM JONES IN JOHANNESBURG

THE SOUTH AFRICAN investment company Federale Volksbeleggings (FVB) has reported a 136 per cent increase in turnover to R425m (\$505m) (1977, R181m) for the 12 months to December 31.

cessor subsidiary Federale Voedsel acquired a 51 per cent interest in major South African flour miller, Ronto. Meantime, in a move away from indirect portfolio holdings, it is planned to sell the 66 per cent holding in furniture manufacturer, Asmar, effective April 1, while simultaneously repurchasing Asmar's major assets.

ary shareholders only managed a 16 per cent increase to R8.5m. FVB maintained its interim dividend at 7 cents, and has declared an additional special interim of 4 cents for the 6 months to December 31. Management has given no indication whether 1977's 8 cent final dividend will be repeated in June.

Hutchison-Boag hopes to be out of the red this year

BY HUGH PEYMAN IN HONG KONG

HUTCHISON WHAMPOA's construction and trading subsidiary, Hutchison-Boag hopes to return to profit this year after reporting an increased attributable loss of HK\$33.77m (US\$6.9m) for 1978, nearly three times its HK\$11.25m 1977 loss.

the first half for losses incurred by the group's construction and contracting divisions. The group went into deficit in the second half of 1977 and the losses mounted as increases in labour and material costs incurred in its construction work. Hutchison-Boag (57 per cent owned by Hutchison Whampoa) has again passed its final dividend. This leaves a total for the year of 2 cents (nil previously).

Sharp rise at Singapore steel mill

By H. F. Lee in Singapore

SINGAPORE'S only steel mill, National Iron and Steel Mills, last year recorded a substantial rise in profits. Group profit after tax increased 77.4 per cent to S\$21.7m (US\$9.95m). Pre-tax profit, however, rose by a faster rate of 118 per cent to S\$37.7. Tax provisions of S\$16m were slightly more than three times higher than the previous year's figure.

ESSELTE AKTIEBOLAG (Incorporated in the Kingdom of Sweden with limited liability) U.S. \$25,000,000 7 3/4 per cent. Convertible Subordinated Bonds 1989 ISSUE PRICE 100 PER CENT.

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Weekly net asset value on March 26th 1979 Tokyo Pacific Holdings N.V. U.S. \$64.43 Tokyo Pacific Holdings (Seaboard) N.V. U.S. \$46.95

Table above gives details of cuts in dividends made by Japanese shipbuilders for the fiscal year 1978-79. The background to cuts was described in today's issue.

Saudi Riyals 79,443,178 (U.S. \$23,800,000 equivalent) PHILIPPINE-SINGAPORE PORTS CORPORATION "PHILSINPORTS" (a subsidiary of Landoil Resources Corporation)

CHEIL SYNTHETIC TEXTILES CO., LTD. A MEMBER OF THE SAMSUNG GROUP, REPUBLIC OF KOREA US \$12,000,000 Medium Term Loan Facility

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With effect from 12th April 1979 the following will be appointed to the Board:-

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P. J. S. Andersen (Managing Director)
D. B. Buik
R. V. Fletcher
G. V. Harnett
P. R. Heard
G. G. A. Monty

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UNION CORPORATION LTD.

(Incorporated in the Republic of South Africa)

The Chairman, Mr. E. Pavitt, reports to shareholders

It is pleasing to be able to report that the Corporation earned a record profit last year. Pride in achieving record figures is nowadays somewhat marred by the knowledge that inflation distorts comparisons - especially longer term ones - but the rise from R37.7 million to R62.5 million substantially outruns such reservations.

GOLD AND URANIUM Work is well under way at Beisa Mines - the first South African mine which will be established primarily as a uranium producer.

The bullion market remained strong throughout 1978, the demand for fabricated gold and coins continued to rise and the price received by the industry was some 35% up on 1977.

PLATINUM

In the platinum market the underlying balance of supply and demand has been distorted by forces which were not only unpredictable but remain partly unexplained.

which, coupled with a steady demand for the metal, brought about a gradual improvement in prices until by the end of 1978 the producer price had reached \$300 an ounce.

INDUSTRIAL In spite of continuing dull economic conditions, earnings from our industrial interests rose by nearly a third, thanks largely to a particularly impressive performance from our packaging and printing group.

OUTLOOK The world is in too much of a turmoil to make predictions with complete confidence but I am optimistic that we shall receive higher dividends from our mining investments during 1979.

Table with 2 columns: Year, Income Dividends after tax per share Rands Cents. Rows for 1978, 1977, 1976.

to open up still further employment opportunities. Our contribution to this process is considerable with capital expenditure running at over R150 million a year.

Copies of the Annual Report may be obtained from the London Secretaries, Union Corporation (U.K.) Ltd., 95 Gresham Street, London EC2V 7BS. (Quoting ref. U.C.)

CURRENCIES, MONEY and GOLD

Pound nervous; dollar steady

Nervousness ahead of last night's crucial vote in the House of Commons put sterling under pressure in yesterday's foreign exchange market, and selling during the afternoon left it at around its weakest level for the day.

The D-mark has fallen by 0.3501 per cent from its central rate, compared with 0.3843 per cent on Tuesday and the Belgian franc has depreciated by 0.9235 per cent compared with 0.9235 per cent previously.

Since the beginning of the system therefore, the lira has strengthened against the krona by 8.10 per cent (compared with a strengthening of the krona over the lira on Monday of 0.05 per cent); the punt by 0.88 per cent (0.80 per cent); the guilder by 1.15 per cent (1.15 per cent); the French franc by 1.30 per cent (1.23 per cent); the D-mark by 1.51 per cent (1.52 per cent); and the Belgian franc by 2.10 per cent (2.08 per cent).

FRANKFURT - There was no intervention by the Bundesbank at yesterday's fixing when the dollar was quoted at DM1.3624, little changed from the previous fixing of DM1.3632.

The Italian lira improved against the Danish krona yesterday and regained its position as the strongest currency in the European Monetary System.

MILAN - The lira improved against the dollar and most EMS currencies yesterday in light trading, and there did not appear to be any intervention by the Bank of Italy.

PARIS - Day-to-day money fell to 61 per cent from 62 per cent. Other rates were unchanged, with one-month at 61 1/2 per cent; three-month at 7 1/2 per cent; six-month at 7 1/2 per cent; and 12-month at 7 1/2 per cent.

EXCHANGE CROSS RATES

Table showing exchange rates for various currencies including Pound Sterling, U.S. Dollar, Deutschmark, Japanese Yen, French Franc, Swiss Franc, Dutch Guilder, Italian Lira, Canadian Dollar, and Belgian Franc.

EURO-CURRENCY INTEREST RATES

Table showing interest rates for various currencies and terms including Sterling, U.S. Dollar, Canadian Dollar, Dutch Guilder, Swiss Franc, West German Mark, French Franc, Italian Lira, Asian \$, and Japanese Yen.

INTERNATIONAL MONEY MARKET

German move expected

The West German Bundesbank left its discount rate unchanged at 6 per cent, which is also the rate on 'A' quota loans, while 'B' quota loans and the Lombard rate also remain at 8 per cent.

At Tuesday's auction the rate on four-month certificates of funds des rates was unchanged at 8.05 per cent, and one-month paper was 7.50 per cent; two-month 7.75 per cent; and three-month 7.90 per cent.

The ceiling on 'B' quotas and the Lombard rate have been unchanged since March 3, while the discount rate and ceiling on 'A' quotas has remained at 6 per cent since July 27, 1978.

UK MONEY MARKET

Small assistance

Bank of England Minimum Lending Rate is 11 per cent (since March 1, 1979). Day-to-day credit was in short supply in the London money market yesterday, and the authorities gave assistance by buying a small amount of Treasury bills from the discount houses.

LONDON MONEY RATES

Table showing London money rates for various terms including Overnight, 8 days notice, 7 days notice, One month, Two months, Three months, Six months, Nine months, One year, and Two years.

Local authority and finance houses seven days' notice, others seven days' fixed. Long-term local authority mortgage rates normally three years 12 1/2 per cent; four years 12 1/2 per cent; five years 12 1/2 per cent; six years 12 1/2 per cent; and three-month bank bills 12 1/2 per cent.

THE POUND SPOT AND FORWARD

Table showing pound spot and forward rates for various currencies including U.S., Canada, Netherlands, Belgium, Denmark, West Germany, Portugal, Spain, Italy, Norway, France, Sweden, Japan, Australia, and South Africa.

THE DOLLAR SPOT AND FORWARD

Table showing dollar spot and forward rates for various currencies including U.K., Ireland, Canada, Australia, New Zealand, Hong Kong, Singapore, and South Africa.

CURRENCY RATES

Table showing currency rates for various banks including Standard Chartered, Citibank, and others.

OTHER MARKETS

Table showing other market rates for various commodities and currencies including Argentina Peso, Australia Dollar, Brazil Cruzeiro, Finland Markka, Greek Drachma, Hong Kong Dollar, Indian Rupee, Kuwait Dinar, Luxembourg Franc, Malaysia Dollar, New Zealand Dollar, Saudi Arab Riyal, Singapore Dollar, and Sth. African Rand.

Based on trade weighted changes from 1978 (Bank of England index=100).

GOLD

Firmer trend

Gold rose by \$1 an ounce in the London bullion market yesterday to close at \$244.245. The metal opened at its low for the day of \$243.294 and rose steadily to touch its best level since just prior to the opening of U.S. markets, at \$244.245.

AMSTERDAM - Call money was quoted at 7 1/2 per cent, compared with 7 1/2 per cent while one-month, two-month and three-month funds were unchanged at 7 1/2 per cent.

HONG KONG - The money market was steady, with call money at 11 1/2 per cent, and overnight at 10 1/2 per cent.

PARIS - Day-to-day money fell to 61 per cent from 62 per cent. Other rates were unchanged, with one-month at 61 1/2 per cent; three-month at 7 1/2 per cent; six-month at 7 1/2 per cent; and 12-month at 7 1/2 per cent.

FRANKFURT - There was no intervention by the Bundesbank at yesterday's fixing when the dollar was quoted at DM1.3624, little changed from the previous fixing of DM1.3632.

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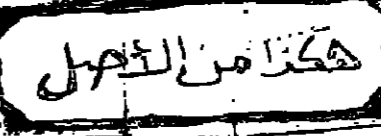
PARIS - Day-to-day money fell to 61 per cent from 62 per cent. Other rates were unchanged, with one-month at 61 1/2 per cent; three-month at 7 1/2 per cent; six-month at 7 1/2 per cent; and 12-month at 7 1/2 per cent.

MONEY RATES

Table showing money rates for various currencies and terms including New York, London, and other international rates.

Companies and Markets

WORLD STOCK MARKETS



Indices

Table showing stock indices for New York, London, and other major markets, including dates and percentage changes.

Wall St. slightly higher in heavy early trade

Investment Dollar Premium 2.50 to \$1-56 1/2% (61%)... TUESDAY'S strong rise relief that the OPEC oil price increase was a good deal moderate than had been expected...

Germany

Continuing to respond to the OPEC oil price rise, which was relatively moderate, compared with the market had feared, and also boosted by the overnight Wall Street upsurge...

Tokyo

Market showed little reaction to the OPEC oil price rise decision, and again finished on a mixed note with a slightly easier tendency prevailing.

W YORK

Table of stock prices for various companies in New York, including columns for stock name, price, and change.

Canada

Table of stock prices for various companies in Canada, including columns for stock name, price, and change.

Paris

Table of stock prices for various companies in Paris, including columns for stock name, price, and change.

STANDARD AND POORS

Table showing Standard and Poors indices and yields for various categories.

N.Y.S.E. ALL COMMON

Table showing NYSE All Common stock prices and indices.

MONTREAL

Table of stock prices for various companies in Montreal.

JOHANNESBURG

Table of stock prices for various companies in Johannesburg.

TUESDAY'S ACTIVE STOCKS

Table listing active stocks and their price changes on Tuesday.

EUROPEAN OPTIONS EXCHANGE

Table showing European options exchange data, including series, volume, and prices.

BASE LENDING RATES

Table showing base lending rates for various banks and currencies.

GERMANY

Table of stock prices for various companies in Germany.

TOKYO

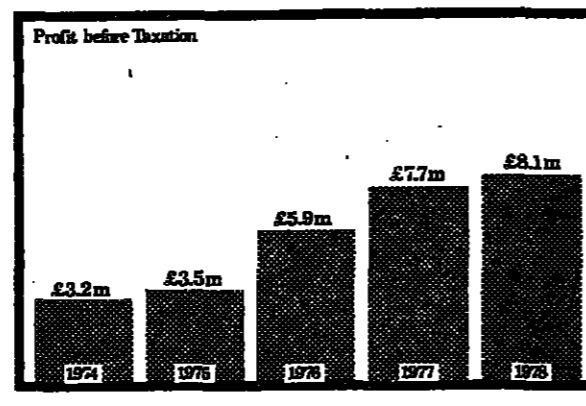
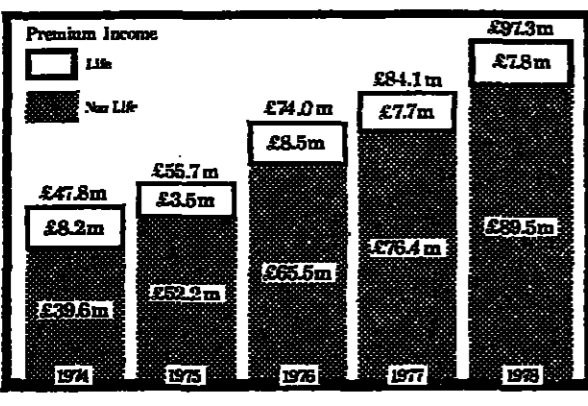
Table of stock prices for various companies in Tokyo.

Cornhill Insurance Group A Challenging Year

RESULTS		
	1978	1977
Premium Income	£000	£000
Fire and accident	85,631	72,582
Marine and aviation	3,901	3,859
Life	7,812	7,716
Profits		
Underwriting results:		
Fire and accident	(1,125)	681
Marine and aviation	(125)	(300)
Investment income	9,351	7,247
Shareholders' Life profits	75	75
Non-insurance company results	(14)	46
Profit before taxation	8,162	7,749
Taxation	3,575	3,850
Profit after taxation	4,587	3,899

1978 was a challenging year for the Group and although non-life premiums increased by 17% to almost £90m, profit moved ahead more modestly from £7.7m to £8.1m. United Kingdom in the motor account an increasing accident rate and a substantial rise in the cost of claims resulted in a small underwriting loss. The pecuniary loss, liability and engineering accounts produced satisfactory growth and underwriting profits. The household account continues to be a major problem area although progress was made during the year towards obtaining more adequate rating levels. Overseas Profits were below those reported in 1977 with underwriting losses in Canada, Australia and New Zealand. Elsewhere results were satisfactory with underwriting profits in Germany and Norway. The most important overseas development was the purchase at the end of the year of Ambassador Insurance Company, a speciality motor insurer in the U.S.A. Marine & Aviation There was continuing overcapacity and pressure on rates in the marine market and aviation claims were

severe. The result was an underwriting loss of £125,000. Life Further growth was achieved in regular premium business and good results were obtained from direct mail activities. Sales of single premium bonds were at a high level. Financial Investment income rose by 29% to £9.35m. The Group's solvency ratio on a market value basis remains strong at 48%. Outlook 1979 may well be a difficult year. The widespread problems of household business are not yet solved and the bad weather and consequent high accident frequency in the UK at the beginning of 1979 will materially increase the cost of motor and household claims. Overseas the outlook is brighter and the newly acquired American subsidiary will make its first contribution to profit. Despite these problems Cornhill plans further expansion at home and overseas and looks forward to the future with confidence. Copies of the Report and Accounts may be obtained from the Secretary at 32 Cornhill, London, EC3N 3LJ.



Cornhill Insurance Group
A member of the Thomas Tilling Group

Britain's valve-makers: an industry under manifold pressures

BY RAY MAUGHAN

THE VALVE INDUSTRY is in deep recession. The problem lies not so much in any substantial volume decline as in new market entrants and new capacity added during the last boom. British manufacturers have tried to maintain market share at the expense of profitability. Fierce international competition and subsequent margins erosion are not unique to valve producers, nor is their charge that certain overseas manufacturers are retelling at or below the cost of production. But rather than shed labour to parve costs, the valves industry now appears to be reaching up market to the high added value offered by sophisticated new products used, for example, by the power generation industry. The main concern for profits, shareholders and the 25,000-strong workforce in the UK valve industry is the extent to which manufacturers will continue to allow low profits and full employment in the event of a prolonged slump in their hope that higher technology will pave the way to important new markets.

The UK valve industry is one of dwarfs and giants. About 10 companies produce 50 per cent of total annual production, domestic sales value of which rose from £241.1m to £299.5m during 1977. The trend showing sales of £88.3m in 1977's final quarter and £72.3m in the following three months (the last period for which industry statistics are available) might be considered reasonably encouraging were it not for the subsequent revaluation of sterling and the growing industrial disruption which has begun to blight traditionally cordial labour relations. These statistics exclude both very small valves used mostly in the home and those used in the oil exploration industry. The figures are made up from two very broad categories: general industrial valves produced from iron or brass and generally known as gate valves and steel valves, which are supplied to process plant industries such as gas, oil refining, petrochemicals, food and brewing.

It is the process plant category which, in the words of Mr. Harold Grace, finance director of Pegler Hattersley, is subject to "boom and slump" conditions. The boom evaporated some 18 months ago. Pegler is one of the two largest independent manufacturers in the UK. Its annual valve turnover, like that of Serck, is

around £40m. Pegler was essentially a top manufacturer until its merger with Hattersley, ten years ago, added a significant presence in the non-ferrous gate valve market. Six months later, under the auspices of the Industrial Reorganisation Corporation, the company bettered Serck's offer for steel valve manufacture, Newman Hender, in a deal which gave Pegler, notable exposure to the process plant market. This market, says Pegler's managing director, Mr. Alex Loudon, accounts for around £17.25m of total group turnover of £86m. A further £15-£20m of the group's production is sold in the form of iron and non-ferrous gate valves, which have wide applications in general industry. The construction trades are major customers for such "bread and butter" products and Pegler is now enjoying the first signs of improved demand from this source.

The international market for gate valves has been very difficult. Exports usually account for around half of total valve sales. But such is the unremitting nature of international competition that ferrous gate valve exports from the UK fell from £8m to £5m between the first quarter of 1977 and the comparable period in the following year, and accounted for almost all the drop in overall national sales from £14.3m to £11.3m.

Effects offset

By international standards Pegler is considerably smaller than the U.S. gate valve producer, Crane, which sells valves worth some £100m annually around the world. Mr. Loudon believes, however, that Pegler's wide product range and heavy marketing emphasis has helped to offset the worst effects of the world economic downturn. Yet the market for steel valves used in the process plant industry looks appreciably more difficult than the gate valve sector. Keen competition has held prices down for the past two or three years while the price of steel castings, which Pegler has to buy in, has risen by an estimated 20-25 per cent over the same period. Petrochemical valves volume, Mr. Loudon estimates, is down by around a quarter from its 1976 peak and, with Rotterdam refineries operating at about 70 per cent of capacity, no immediate improvement from

these areas can be expected. There are some brighter points: Guest and Chirnes, in which Pegler has a 49 per cent stake, enjoys "constant and fairly good demand" from the water treatment industry and Pegler is confident of an improvement from its McEvoy Oilfield Equipment associate—where Rockwell owns the 51 per cent majority—after a severe downturn in the energy exploration market in North America.

Despite increased activity in Pegler's important building products division, where sales amounted to £39m last year, the weakness of most areas of the steel valve industry is such that Pegler expects no more than maintained profits of around £12.6m this year.

Serck's problems, in the wake of a bitterly fought and ultimately unsuccessful takeover bid from Associated Engineers, have been widely chronicled. The defence forecast of £9m pre-tax for 1977 was comfortably beaten but profits in the following year slipped back by more than £4m. A further fall is threatened in the current period. Serck employs £21.5m, or around 45 per cent, of its total operating capital in the valves sector; Pegler around 40 per cent. Convinced that the currently more stable gate valve market is already very well served and thus highly competitive, Serck is almost exclusively geared to the "boom and slump" steel valve industry.

Serck's involvement goes back to 1955, when as a manufacturer primarily of radiators, it acquired the privately-owned Audley Engineering valves concern which was already well established in Europe. Its Newport factory still provides the guts of Serck's steel valves manufacturing capacity. In 1964 a marketing venture with Rockwell was started. The principal product was the lubricated plug valve, which remains Serck's major speciality with annual sales of around £20m. The butterfly valve market was developed during the last decade and Serck would claim a significant position here in the world market. Towards the end of the 1960s, the group also entered a joint venture with the Jamesbury Corporation of Massachusetts in the ball valve market. Serck quickly bought out Jamesbury's stake and, in 1972, severed its connections with Rockwell and purchased Rockwell's plant outside the U.S. At that point, says the group's chief

executive, Mr. John Pinckard, Serck became a significant international company.

Turnover of both ball and butterfly steel valves is running at around £10m annually. Mr. Pinckard sees the general industry or gate valve market increasingly in terms of a commodity business and is therefore determined to take Serck further into the more specialised highly engineered product range. Unlike Pegler, which will not be tempted into the U.S. until "either they become more protectionist or we become more efficient," Serck is clearly very attracted by the North American market. Mr. Pinckard is confident that the North American plug valve market has sufficient room for both Rockwell and Serck. The two groups are very close and the U.S. manufacturer is thought to have approached the Serck board with takeover proposals some seven years ago. However, no major rationalisation or merger moves are on the horizon.

Neither Serck nor Pegler foresees much new investment in the valves market. Pegler, Mr. Loudon stresses, is more aware than in the past of the need to look at overseas markets and will be making a big export effort in, for example, South East Asia, where penetration is still relatively small. Around 70 per cent of Pegler's steel valves are already exported, however. The Pegler board has concluded that "within the next three-five years, the group must undertake a major investment to get off its present plateau—but it may not be in valves."

For all the apparent difficulties, there do seem to be areas of growth still capable of attracting new market entrants. Valve-makers Hopkinsons Holdings' 25 per cent interim pre-tax profit advance last year to £3.15m is an example of the long-term strength of the power generation industry, its major customer, at a time when the market for its "off the shelf" valves is being badly squeezed by competition.

With the important building sector beginning to stir once again, the bottom of the trough for the valve industry, if not yet reached, cannot be very far off. But nobody is even prepared to hazard a guess as to how well and how quickly the market can lift demand to meet supply. The industry will remain under a heavy cloud until that question can be answered.

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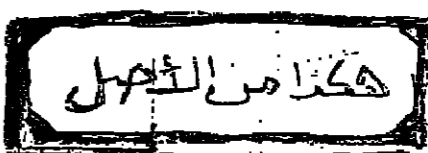
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But do remember that you're tasting no ordinary Scotch.
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PURE MALT SCOTCH WHISKY
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Pure Malt
Scotch Whisky
Only at the Glenfiddich
Distillery
Glenfiddich
Pure Malt Whisky is produced by
Glenfiddich Distillers
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FINANCIAL TIMES SURVEY



Thursday, March 29 1979

How chips are made

Max Wilkinson

MODERN wonder of microelectronics is much easier to understand than most people think. The subject sometimes seems to be shrouded in mystery because the circuits are extremely small. The idea of a powerful computer the size of a soap-disk, a tea-leaf or a small insect seems well within the realm of possibility. So, most people are surprised when they discover, for those with more curiosity, the starting point is that microelectronic circuits are really only small versions of man-made relays, big and clumsy animal-like earliest computers and receivers were relatively simple, mainly because the people connected different components together with wires, nuts and solder could not move their fingers round things smaller.

The earliest computers about 1950, fairly thick and heavy, were used to carry pulses of electric current through a series of valves. The valves, the simple function of which was to pass or block the current in one direction, were connected to form a "gate" which is the basic building block of all computers, large or small.

The name implies, a gate is an electric pulse to pass through when it is opened, but blocks the current if it is shut. The gate can be opened or shut by another electric pulse carried to the gate by a separate wire. Thus, a gate has two wires going into it: one carries the pulse which is trying to pass through the gate and the other carries a pulse which flips the gate open or shut. Only one comes out of a gate. The

exit wire will only carry a pulse out of the gate if the entrance wire's pulse and the signal wire pulse to keep the gate open arrive at the same time.

In other words, if two pulses arrive at a gate together, one pulse comes out; but if only one pulse arrives at the gate nothing gets through. This is the basis of all digital computers. They consist of large numbers of gates connected together to perform the extremely simple form of arithmetic involved in adding two electric pulses together.

Calculations

Computer arithmetic therefore takes this rather odd form: one pulse + one pulse = one pulse (1+1=1); and one pulse + no pulse = no pulse (1+0=0).

Luckily, this form of arithmetic can be used for binary addition and subtraction, which can be readily translated into the more familiar counting methods of the outside world. All calculations of all digital computers are accomplished by large numbers of these simple gates adding electric pulses at very high speed.

In the earliest days, the gates had to be the size of shoe boxes because they were made from the old vacuum tube valves which used to be found in radio sets. The computers consisted of three basic elements: a series of gates to perform the basic arithmetic or processing, an electronic store of pulses representing the data to be processed, and a store for pulses representing the programme which would open and shut the gates in the desired sequence.

These early computers were cumbersome, expensive and unreliable. The thousands of glowing valves made them liable to overheating, and consume large quantities of electricity.

It was obvious from the start that computers would be much more efficient if they could be made smaller. Electric pulses would have less far to travel between gates, so the whole operation could be speeded up. This only became possible in the late 1950s and 1960s, following the invention of the transistor in 1947 as a replacement for the valve.

In 1959, transistors were made by the planar semiconductor process which now forms the basis of microelectronics. The process starts with single crystals of silicon which are grown in vats of molten sand. In its pure form silicon will not conduct electricity—but it was discovered that if the silicon was heated in an oven with certain gases, it became contaminated in such a way that it would partly conduct electricity. It then became a "semiconductor".

Different types of contamination created different properties in the semiconductors, and it was found that if two different semiconductors were "sandwiched" together, they would allow electricity to pass in only one direction, rather like the old thermionic valve. The great advantage was that transistors were much smaller and used up much less power.

The second generation of computers in the 1960s, was therefore more powerful and much smaller than its predecessors. The transistor, in fact, made computing available to a wide

range of commercial and government institutions which could never have afforded the old valve-driven monsters.

Transistors began to be made in large quantities on thin, saji-like wafers of silicon, sliced from the sausage-shaped crystal. Many identical transistors were made on the same wafer which were then cut up into small squares, each containing one transistor. To achieve this, the wafer was first covered with a mask so that only small pinheads of contamination were diffused into the silicon slice. Each pinhead was at the centre of a small square or "chip" which formed one transistor. The wafers had to be placed successively in different diffusion ovens with different contaminants to form the complete transistor. These transistors were then wired up (just as the old thermionic valves had been) to form gates. In America, about 1969, in the

Bell laboratories, it was realised that by doubling the number of pinholes on the masks, two transistors (instead of one) could be diffused on each square or chip. The two transistors were then connected with fine lines of aluminium—sprayed onto the wafer through minute slots in another mask.

Within a couple of years, the techniques had been developed to the next logical step until about five interconnected transistors were placed on each chip to form a complete computer gate. The electronic components, which started as the size of a shoe box had, been reduced to a small flake of silicon, about a quarter of an inch square.

The age of microelectronics had begun. One of the greatest difficulties was to make masks accurately enough, so that only the right parts of the silicon wafer would be doped with impurity when it was placed in the diffusion oven.

This problem was eventually solved by a photographic process. The wafers were coated with a sort of lacquer called "photo-resist" which can be washed away when exposed to ultra-violet light.

The masks were first drawn very accurately on transparent sheets the size of a kitchen table. They were then photographed and reduced to a slide the size of the silicon wafer. When ultraviolet light was shone through the slide onto the wafer, the required pattern of pinholes was burned into the photo-resist. When the wafer was placed in the diffusion oven, the gas would pass only through these pinholes to form the pattern of transistors.

Limits

Throughout the 1960s an enormous research effort was made in the U.S. to improve the purity of the silicon crystals and to increase the precision of mask-making. As a result, the number of transistors which could be placed on each chip doubled every year. At the same time engineers developed new types of patterns or "geometries" for their chips, to increase the packing density of transistors. Pinhole transistors began to merge and then to be replaced by a convoluted pattern of microscopic lines, each formed with a different type of impurity.

In 1972, Intel, the acknowledged leader in its field of semiconductor technology, was able to etch not merely a computer gate but the complete central processor of a computer on to a single chip of silicon. The first of these microprocessors were so-called "four bit" machines. That means they represented each character of

information by four pulses (or the absence of a pulse) of electricity. They were therefore relatively simple computers, suited to mechanistic applications such as controlling washing machines.

Now, Intel is producing its first 16 bit microprocessor, which has the power and speed of a modern mini-computer and out-performs the larger computers of the early 1960s. This device, which includes substantial memory is more properly called a microcomputer. Intel also pioneered the use of semiconductors for computer memories with an entirely new chip capable of storing 1,000 bits (or pulses of information), the 1k random access memory (RAM).

For this reason the advances in technology which make the big micro-processors and memories possible are constantly reducing the cost of the "simpler" circuits. Already, the simpler micro-processors can be bought for less than \$1. Once the masks and the design have been perfected, computers can be printed out like postage stamps. And during the next decade they will be.

The techniques used for computer circuits can be used for almost all types of electronic devices including radio and television. Although designs are different, the fabrication and the economics are basically similar.

All types of circuit have now been shrunk so small that engineers are reaching the theoretical limits of photolithography for masking the wafers. However, new techniques are being evolved to overcome the difficulties, including X-ray lithography and electron beams which draw circuits directly onto the silicon wafers. These developments, and the use of computers to help to design chips, are discussed in the article on future technology on page xx).

Microelectronics

Major investments in microelectronics are now planned in Europe, based mainly on American technology. But it remains to be seen whether a fragmented European effort can successfully challenge the industry's leaders in the U.S. and Japan.

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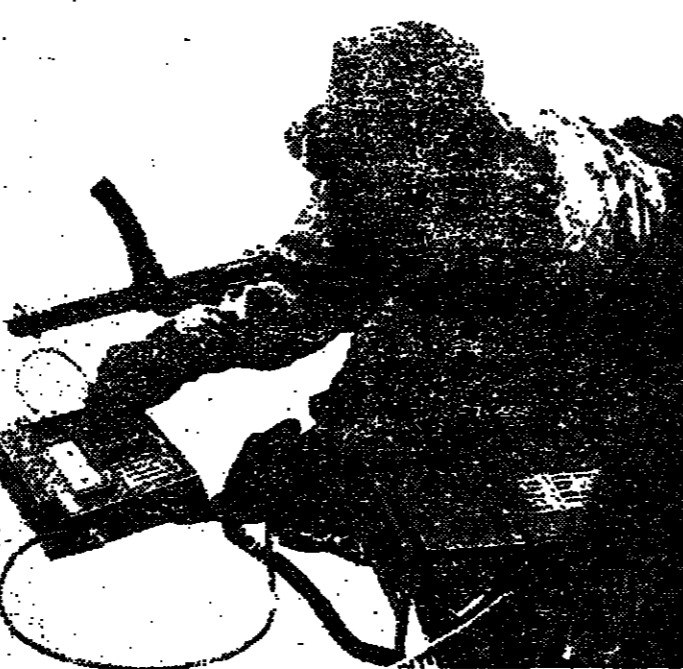
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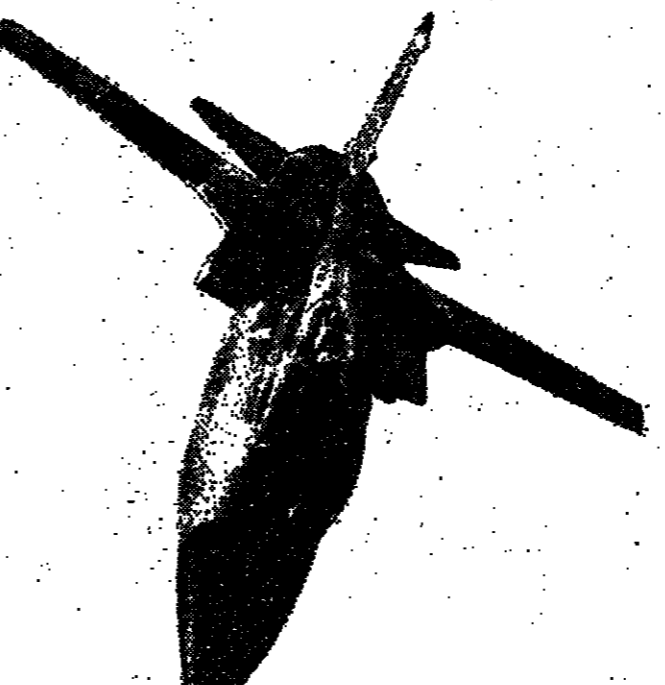
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MICROELECTRONICS II

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A race to stay in the league table

EARLIER THIS month, Mr. Alan Williams, the Industry Minister, who has had most to do with Britain's attempts to enter the micro-electronic age, revealed a disturbing (to British business) set of figures. They showed the percentage of industrial components used in manufacture which were micro-electronic parts of one sort or another.

The U.S., not surprisingly, came top, with 24 per cent. Japan followed, at 15 per cent. West Germany came in at 14 per cent. Western Europe as a whole—not far behind Japan—was at around 13 per cent. But of that last total, Britain fell below the average, at between 10 and 15 per cent.

In short, Britain's manufacturers have been finding applications for micro-electronics at a significantly slower rate than its major industrial competitors. It is a measure of the strides taken in the past year that it is

now regarded as axiomatic that to lag behind in a league table like this one is a bad thing. Yet only a year ago there was little public discussion, either by Government or anyone else, on micro-electronic technology.

Precisely because the public "debate" has moved so rapidly, it is necessary to pose simple questions which have tended to be overlooked in the rush. The simple questions here are: why is it so important to find applications for micro-electronic devices? Why are there problems in doing so, and what are these problems?

Complex

Why are micro-electronic applications important? Micro-processors combine increasingly high processing power—that is, they can control more and more complex functions—allied to a tiny size. Therefore they lend

themselves extremely well to a wide range of tasks which were previously (or still are) performed mechanically. The developments in equally tiny memories, which can now pack up to 64,000 bits or units on to a chip, further enhance and extend their use.

Because of this the two major areas of labour, the factory and the office, will see sweeping and progressive changes with, in factories, the introduction of micro-processor controlled machine tools and, in time, robots; and computer-linked word-processing systems now being introduced in offices.

At the same time, domestic tasks and leisure pursuits will also be invigorated by the new technology, as consumer goods such as cookers, washing machines, refrigerators and indeed the home itself incorporate processors; while developments in the television set particularly presage a range of applications, from information bank to home computer and a variety of TV games.

Further, the possibly inevitable atmosphere of slight hysteria which has gripped Government and industry has meant that for some companies at least, a cool look at where micro-electronics could be most cost-effective in their businesses has not yet been made.

However, considerable steps have been taken, and it is worth listing some of the more outstanding ones. Both the General Electric Company (GEC) and Plessey have announced that they will put major effort into the development of processor-based office systems, while the National Enterprise Board has set up a new company—NENOS—to fish in the same waters.

The Post Office's development of the digital electronic telephone exchange, System X, which will go on public show for the first time later this year, will in itself be a major user of micro-electronic technology, as will the peripheral developments associated with it.

Immos, the NEB's own semiconductor company, has said it will develop a range of micro-computers when it begins work in the UK in the early 1980s. All the major European automotive companies are actively examining ways in which they can fit micro-electronic control systems into their cars. Naturally, the major computer manufacturers remain important users of chips.

Beyond these developments, there are encouraging signs that the British Government's micro-processor applications programme—funded last year to the tune of £55m—is beginning to pay off.

The Department of Industry offers support to companies to look at micro-electronics applications, both by paying up to £2,000 of the cost of hiring a consultant and by a grant of 25 per cent of the cost (normally not less than £10,000) of projects involving such applications. About 300 application projects have been approved so far, a much higher take-up than is usual in these cases.

Most recently, it has launched, in association with FA Consultants, a programme to make the country's "decision makers" in business and the trade unions aware of micro-electronics and its effects on products and jobs. This crash programme will take place between May and July of this year and then, indeed concomitantly as well, seminars and conferences organised by a variety of organisations will be encouraged and, to a limited extent, funded.

Quality

It is probably worth saying that, since the quality of many of those courses and seminars has yet to be proved, the aspirant after micro-electronic knowledge would be well advised to shop around carefully before making a choice.

The main emphasis of the courses will be in two directions: first, to make management aware of what micro-processors can do in their company; and second, to teach engineers, both those with a basis of electronic training and those without, how to acquire programming and other skills necessary for their efficient use.

The private courses are being supplemented increasingly by courses now being developed by universities and polytechnics, and it is estimated that the 3,000 places in micro-electronic engineering now being offered will shortly be doubled.

The main point, which is now being noted, is that the rapid developments in micro-processor and memory technology are in themselves useless until applications are found for them. This in turn means that the speed of development of new products must attempt to match the introduction of ever-more complex and powerful chips, or face obsolescence and declining markets.

John Lloyd

Infinite number of applications

THE MICROPROCESSOR has attracted the most public attention recently, because of its very wide variety of potential applications.

The microprocessor is a standard component which can be mass-produced relatively cheaply, but it can be programmed for an infinite number of different applications, ranging from the controls of a washing machine or to a vehicle's carburation system or to an accounting machine.

The microprocessor can be produced cheaply because it can be manufactured in millions without it needing to be redesigned for each new application. A large part of the cost of each new application is therefore in the programming.

The microprocessor is, however, useless on its own. In any application it must be connected to an array of memory cells and also to special circuits which will translate the microprocessor pulses into a form which is useful in the outside world (input/output devices).

For example, a micro-processor controlling a washing machine will need to accept information about the water temperature which must be converted by a special circuit into the pulses understood by the micro. Its output will also

have to be converted into a stream of pulses into electric currents able to operate switches, for example, to turn water taps on and off.

The special circuits need to be designed for a limited application and are often more expensive than the microprocessor itself, although Ferranti in the UK has developed a device called an "uncommitted logic array" which is claimed to cut design times to only a quarter for these special circuits.

Memory circuits, by contrast, are almost all mass-produced to a world standard. Read-only memories (ROMs) are used to carry programs and data which cannot be altered once the micro is in service. Random access memories (RAMs) can store data which is constantly changing.

The microprocessor can fetch data from any cell in a RAM. But for bulk storage, serial memories, including the new bubble memories, are used. Data can only be retrieved from a serial memory in predetermined sequence, as from a magnetic tape.

In some applications, where very large numbers of chips are needed, it may be cheaper to develop a special circuit rather than use a microprocessor and its associated circuits.

Max Wilkinson

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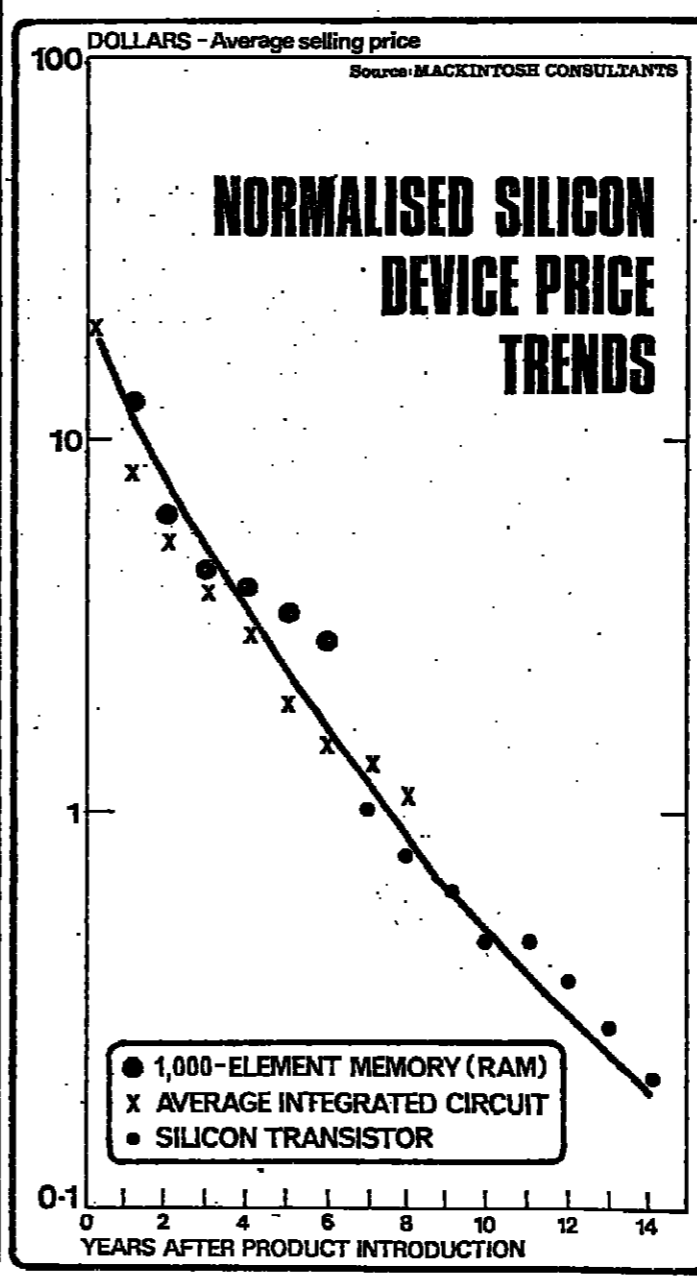
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MICROELECTRONICS III

Changes in the function of chips

NAKED microprocessor is about as useful as a dead artery and, just like any other central processing unit, needs memory and support circuits to function properly.

Not many attempts have been made to differentiate between processors themselves and their ancillary chips, possibly because of the spread of development which is leading designers to provide micros which incorporate some memory and control functions on one and the same piece of silicon.

Indeed, the single-chip processor with its own on-chip memory is seen as the product which in the end will dominate a market. In the meantime, single-chip, multi-chip and bit-slice micros are served by a multiplicity of other devices and it looks as if the ratio of processor value to support circuit value is now in the region of 1:6 with single chip accounting for 6 per cent of a total market value of \$1.44bn in 1980, valued at \$600m by Mackintosh Consultants.

The latter put the share of single-chip products at 9 per cent that figure with PROM/ROM memories at 36 per cent, RAM at 17 per cent and other support circuits at 32 per cent. In 1985, when market value is expected to reach \$2.22bn, Western Europe has moved to 25 per cent and a half times the 1980 value. The picture is expected to change considerably, as indicated above, single-chip devices will surge ahead to 13 per cent of the higher market value of \$720m against \$60m now.

Multi-chip will go to 16 per cent, PROM/ROM to 23 per cent, RAM to 9 per cent and support devices to 24 per cent.

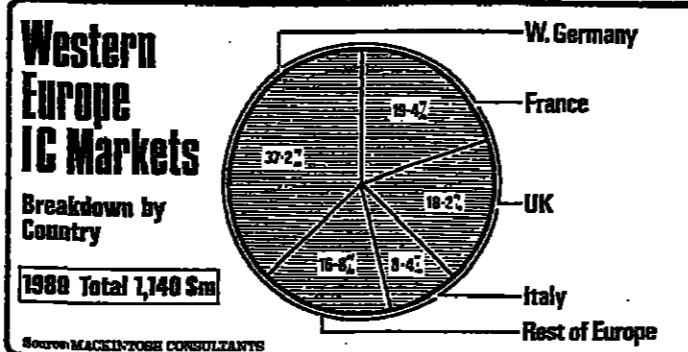
In other words the processor/support and memory chip ratio will have altered drastically to around 9 to 11. But be that as it may, the memory market in the specific area of the micro will still be worth a hefty \$880m against \$500m in 1980.

Trend

Underlining this trend is a statement made last year at a symposium in Anaheim by Dr. Federico Faggin, head of the Intel Corp., who invented the first microprocessor in 1971/72 while he was working at Intel.

Faggin saw very large scale integration (VLSI) with 5,000 or more logic gates per chip having a major impact on processor and memory capabilities. Cost per gate had decreased tenfold to about 0.5 cents since 1971 and the 10,000 gate device was a year away with 50,000 gates achievable by 1985 — probably demanding a move to silicon-on-sapphire (SOS) technology because of the latter's much higher power dissipation.

Curious in the Mackintosh projections is the relatively slow advance of the RAM from about \$18m in 1980 to \$24m in 1985. Yet there has been a great flurry of writing about 64K RAMs and the speed at which they will displace other smaller chips, including the standard 16K between now and 1990. This itself will be replaced by a unit of four times the capacity by 1982, with a 1m bit RAM expected by 1985/6.



The relatively high growth in France can be largely accounted for by a higher ratio of discrete to ICs than in West Germany or the UK prior to 1978. The increase in the rest of Europe between 1978 and 1980 is largely accounted for by IC requirements in the watch and clock industry.

Many makers of general purpose machines, including ICL and Honeywell welcomed, of course, the appearance of the 16K devices and used them to win a small march over IBM when the latter was introducing new machines still using 1K banks.

Naturally, LSI and VLSI in bipolar or MOS are not the only memory and ancillary products serving the microprocessor though they are extremely fast with access/switching times measured in nanoseconds.

Also in the micro domain are the slower but considerably cheaper magnetic bubble memories and the charge-coupled device group.

Already manufacturers such as Rockwell are offering four-slice bubble memories representing 1m bits, and higher capacities per chip are predicted by it and by Texas, who was first into the market with bubbles and with equipment based on them.

Backers of CCD (charge-coupled devices) see on the horizon a hybrid RAM/CCD on a single chip to give lower

systems costs without a deterioration in performance, despite CCD's much slower access time of around 100 microseconds.

Forecast

Motorola development specialists forecast an important intermediate storage rate for such devices, serving powerful micros, midway between fast LSI memory and mass storage—which could be one or other type of disc.

And there is also the Ebeam-electron beam accessed memory—expected to hit the market in the early 1980s in which a tube of processed material one inch in diameter and two inches long can contain 1,000m bits of data which can be extracted by the beam in 80 microseconds for any location.

One factor which could have a marked influence on trend predictions is the degree to which circuit makers themselves pursue the production of virtually complete systems which only need to be connected to a power source and sensors to function in many roles.

Intel, for instance, very recently brought out what it said was the first industrial control system of its type—ICS-80. This system will take any of the company's single-

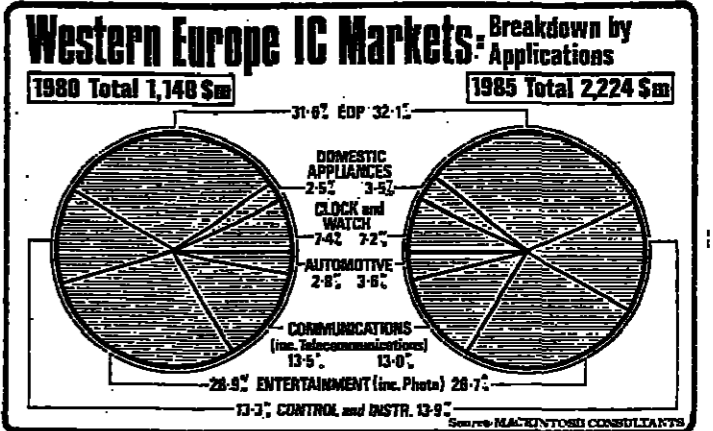
board micros within its signal conditioning and wire termination array, as well as any of the function expansion boards made by Intel and by 30 other manufacturers supporting the Intel Multibus design.

Intel obviously hopes for overkill and that the ICS-80 will become a de facto standard in the process control industry, in production automation, in data acquisition and in test devices.

But it is not alone in manufacturing such equipment since National Semiconductor almost simultaneously launched both a single card data acquisition system and a single chip eight-bit micro with a fair amount of memory on the same chip.

The data acquisition unit is on a Eurocard and provides 16 channels with 12-bit analogue to digital converter. On each signal conversion the RAM unit is given the result which it will feed out to the user within 220 nanoseconds of demand. Throughput is 8,000 channels a second, and the unit will work with "any of the popular computer systems."

To make the new one-chip, National has gone to a high density manufacturing technique X MOS. This has given it ability to provide 4K bytes of ROM and 256 bytes of RAM in the same chip and the claim is that INS8050 has double the capacity



While the EDP sector will still remain the largest, the newer applications in watches, clocks, domestic appliances and automotive products will together take nearly 13 per cent of the market by 1980.

of any comparable unit on the market. It looks as if forecasters and specifiers are going to have a high old time over the next few years!

But meanwhile there is the floppy disc, without which the present upsurge in micro usage arguably would not have happened. And its application in micro systems and in peripherals is encouraging continued growth predictions of between 30 and 40 per cent annually until some time in the 1980s when solid state stores—bubbles or CID—start to dis-

place discs. Indeed, some solid-state devices already are on offer, but they are attacking a world market of around \$600m at the moment so would have to achieve universal acceptance very quickly to make a visible dent.

However, the ultimate goal for the designer of a complex system must be to eliminate moving mechanical parts, if only for reliability's sake. Thus, the days of disc storage must be numbered, even if in thousands.

Ted Schoeters

Innovators struggle to find uses

THE FIRST application of a "big" integrated circuit to show such developments could come general was in an automatic washing machine.

Servis was the bold innovator, starting its initial development four years ago, with the aim of replacing the mass of timers, relays, and controllers needed to operate the motor and heater in a modern programmed washing machine, a single electronic control chip.

The design task was not an easy one and there was very little precedent to go on. Final victory would have to be able to resist the steamy and sometimes corrosive atmospheres prevailing inside the cabinet—ne detergents contain more than a dash of bleach—and put with shocks that occur in the unbalanced equipment.

The chip also had to be isolated from the heavy current needed to drive the powerful motor and the whole array must be designed so that servicing, if necessary, would amount to a relatively simple replacement.

Servis management saw a realisation in the need for maintenance of the quite complex electro-mechanical equipment in utility automatic machine as a main line in a particularly tough area of the consumer goods market. Their reasoning was that if visits to customers could be cut by half or more the company would earn a great deal more, since to keep a big team of engineers on the road is a coming prohibitively expensive.

But behind this short-term objective was a much more far-reaching plan. Servis knew it was first in the field and that, in the ITT micro-electronics centre at Footscray, it had done an excellent job. The target is a washing machine control market for Europe, amounting to several million units a year.

Extensive

Meanwhile, the development enabled Servis to produce extremely compact machines which do not perceptibly vibrate, even when operating on spin. True, it is expensive because the company has a large amount of research and development to pay off. But one of its tribulations is the recalcitrant washing machine and if it has tamed the beast to an extent that only one maintenance visit a year is required then some thanks are due to its electronic pioneers.

Since this early application of micro-electronic device was due to what is in effect process control, suggested uses have been thick and fast for this area, and it is clear that a high degree of over-enthusiasm cars with it certain dangers. There is little doubt that with an amount of over-selling now prevalent, micro-computers will be misapplied and some disillusionment creep in—not because of lack of reliability or performance but due to wrong uses of basic devices and to software.

In some areas of process control, the technology will have a hard task to gain a foothold, just as it took direct computer control of process plant at least ten years to gain acceptance.

To consider just one area of the process control industry, pneumatic controllers, it has to be remembered that up to 75 per cent of orders from instrumentation companies are for replacement and retrofit work or for customers who specify themselves what they require.

At the same time, pneumatics themselves have been given a boost by advances in associated instruments and tend to integrate well with electronics. So many designers and users, particularly in industries operating on hazardous products, will think long and hard before making radical changes in equipment that has served them well for several decades.

It must also be considered that overseas customers, particularly those in the Eastern bloc countries, do not like sudden swings in technology—not even in the size or material specifications in process vessels—particularly when the technology is one they are years away from being able to emulate. And that area is a good customer for British process plant.

As could be expected from the Servis work engineers see the best outlet for micro-electronics in programmable controllers. World sales of these devices, which are in effect small local plant's nervous system, are running at about £100m a year and have reached the very high growth rate of around 100 per cent.

The important part of any such controller can now be bought in the shape of a single silicon chip and it is obvious that here is a big micro-electronics growth area. If it is proved that a micro-controlled device applicable as a single-loop controller can be made as cheaply as the analogue version, progress will be rapid. For more complex units, it remains to be seen whether designers will opt for the potentially very high degree of reliability inherent in the ease with which redundancy and self-checking will be built into micro-based devices.

Telemetry is an area where opto-electronics are likely to expand quickly. Pioneering work is being done on military aircraft by Marconi to provide signal paths which are no longer lengths of wire or tubes carrying hydraulic fluids, but bundles of hair-fine glass fibres.

These fibre optic strands carry light signals and channels them along with no interference whatsoever and very little attenuation at each end. An opto-electronic unit emits a pulse of light as a relay opens or closes, or emits an electrical signal—to an instrument—as it senses a pulse of light.

Because the provision of many light fibre paths is a relatively simple matter, it is easy to see that control systems for aircraft and plant in hazardous areas can be made enormously more reliable. Outlets for minute opto-

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MICROELECTRONICS IV

U.S. manufacturers lead the way

WORLDWIDE SALES of semiconductor devices in 1978 totalled \$7.6bn, of which about 58 per cent or \$4.4bn was integrated circuits. Dataquest, the U.S. analysts, are forecasting a rapid rise to \$12.7bn for the total semiconductor market in 1982 of which 66 per cent or \$8.4bn is expected to be integrated circuits.

During that period the fastest growing sector of the market is expected to be Metal Oxide Silicon (MOS) devices, from which most microprocessors, microcomputers and expanding sector of computer memories are made. Sales of MOS devices are expected to double in the five-year period.

This market is served by manufacturers in three geographical groups and two main categories. The geographical groups are the U.S., Europe and Japan. At present the U.S. supplies about 63 per cent of the world's total of semiconductor devices and probably more than 70 per cent of integrated circuits. The Japanese companies, stimulated by a \$1bn government investment programme, are currently the only serious contenders against U.S. dominance in the world market for standard integrated circuits.

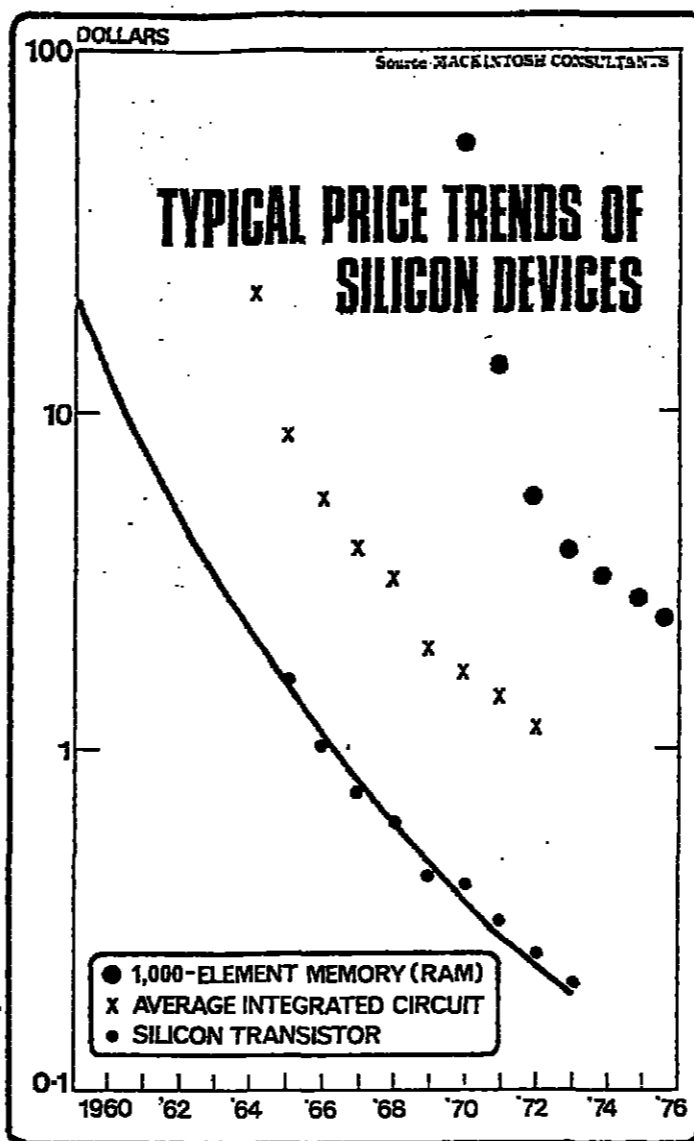
Investment

A major investment is now planned in the UK, France and Germany over the next three to five years, but most of the technology for the new ventures will come from America through licensing, joint ventures, or in the case of the British Government's subsidiary INMOS, simply by buying key American personnel.

The semiconductor companies can be divided broadly into two further categories: the big league making mass-produced products including world standard computer memories and microprocessors, and the little league of companies which concentrates on trying to make high-value circuits for special and limited applications.

Until recently all the European semiconductor manufacturers except Philips and ITT have been in this second category. It includes the three British manufacturers, Plessey, Ferranti and the General Electric Company (GEC). Total semiconductor sales of these three companies in 1977-78 are estimated to be \$60m, only about 6 per cent of the semiconductor sales of the U.S. industry's leader, Texas Instruments. In the current year, Ferranti, probably the only profitable UK-owned manufacturer, is expected to sell about \$14m worth of integrated circuits from its British plant and a further \$10m through its newly acquired American subsidiary Interdata.

This acquisition makes Ferranti the largest UK-owned manufacturer and with a return on capital well ahead of the



world-wide industry average, it is easily the most profitable. Plessey, whose integrated circuit turnover is estimated at \$18m in 1978, has been losing money and was last year looking for a purchaser. After abortive negotiations with both the National Enterprise Board and the GEC Plessey turned to America, but lengthy talks with General Instrument Microelectronics have so far borne no fruit.

Meanwhile GEC, whose integrated circuit turnover of \$5m in 1978 was negligible on the world scene, has formed a joint venture with Fairchild of Palo Alto, California, the fifth largest of the American integrated circuit manufacturers.

In France the largest integrated circuit (IC) manufacturer is Thomson CSF, through EFCIS, its joint venture with the Atomic Energy Authority. Thomson's IC sales last year are estimated at \$25m-\$30m on which it made a loss of about \$16m. This company has recently agreed to buy technology from Motorola, America's second largest semiconductor manufacturer.

In Germany the two manufacturers are AEG-Telefunken and Siemens, of which Siemens is the only serious contender

in the international market (for digital circuits). Its IC turnover last year was \$75m but it made \$265m of discrete semiconductors. AEG-Telefunken has concentrated on so-called linear circuits suited to applications like radio and TV.

Siemens is likely to receive the lion's share of the Federal Government's \$100m to \$120m subsidies for the development of very large integrated circuits planned over the next few years. Siemens has also gained access to U.S. technology through its 30 per cent stake in Advanced Micro Devices (AMD) of California, the tenth largest U.S. company in this field.

Efficient

Recently, however, Siemens and AMD have ended their collaboration over the development of micro-computers. Siemens has taken a licence from Intel, while AMD in the U.S. has elected to hitch its fortunes to the designs of a smaller company, Zilog.

Easily the largest of the European integrated circuit manufacturers is Dutch Philips, together with its U.S. subsidiary, Signetics. Philips itself is relatively strong in the production of linear circuits and discrete semiconductors, but the group has yet to make an im-

pact on the market for high technology digital circuits. Philips's IC turnover last year was about \$136m. Signetics is the sixth largest of the U.S. companies in integrated circuit production, with a turnover of \$200m in ICs. Philips's total semiconductor production including single transistors exceeds \$720m a year.

After Philips and level with Siemens comes ITT, an American-owned company which breaks with the usual pattern by having almost all its integrated circuit production in Europe. Footscray in Kent is the company's centre for MOS memory products, and ITT now rates second place in Europe for the sales of the industry's most advanced memory product, the 16,000-cell random access memory (16k RAM). It will soon go into production with the next step up in capacity—a 64k RAM. Its total IC production last year was about \$70m.

In Japan the four integrated circuit producers—Fujitsu, Hitachi, Nippon Electric and Nippon Telephone and Telegraph—must be considered in some sense as one, since they all co-operate in the government-subsidised research effort.

The Japanese have so far concentrated on supplying their own home market, with only a limited incursion into American and European markets. However, in certain narrow but important sectors the Japanese have shown themselves to be efficient producers and aggressive in marketing. Some of their computer memory components have been acknowledged by U.S. competitors to show superior reliability, largely because of the exhaustive test cycles that they are put through.

In the U.S. the top six integrated circuit companies all now have IC sales of over \$200m. Texas Instruments is the leader by a long way with 1978 IC sales of over \$669m, more than double the sales of its nearest rival, Motorola, which returned \$320m. Next comes National Semiconductor with \$330m and Intel with \$300m. All of Intel's products are in the high technology part of the industry. After Intel comes Fairchild with sales of \$273m in ICs and Signetics with \$200m.

Only three companies fall into the next bracket in the integrated circuit league. They are Advanced Micro Devices, RCA and Mostek, all with sales in the \$120m to \$130m range. The third group comprises companies with about half the IC production of the second group. It includes ITT, General Instrument, Harris, Rockwell, Intersil and AMI. All fall into the range of \$80m to \$80m a year.

At the same time, the controller is setting aperture for optimum conditions or flash and it is obvious that without some really advanced technology including micro-processing, the Polaroid could not work.

Still on the leisure trail, micro-chips have found their way into TV games, about which many observers have mixed feelings. It all depends on what you call a game. Certainly the latest micro-chess players are well worth experimenting with, but they are not cheap and they have a certain lack of human warmth.

Games inventors are going to have to inject more than a dash of education into their products if the sector is to take off as the trade often has predicted. Indeed, it is the educational sector that is more likely to develop in a significant way, particularly to train and aid the severely handicapped and allow them to carry out useful work through novel means of communication.

Latest in recent attempts to make communications easier for the speech handicapped is a unit called a "Slink" for speech link. It is a TV screen connected to a keyboard carrying 950 words which form a good basic speech vocabulary.

The user touches the required word and a micro-processor decodes the position in vertical and horizontal rows to determine the word to display on the screen. In this simple way, quite complex sentences can be built up very quickly.

Extensions into the educational field are numerous and likely to be of much greater value than the TV game, which is a nine days' wonder and, after that, most probably, a great yawn.

Stored in memory is information such as the speed of sound and the characteristics of the



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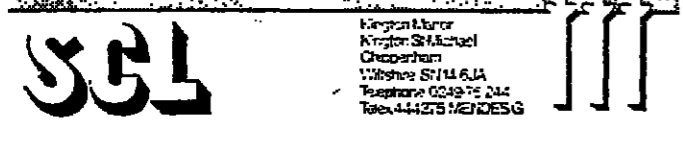
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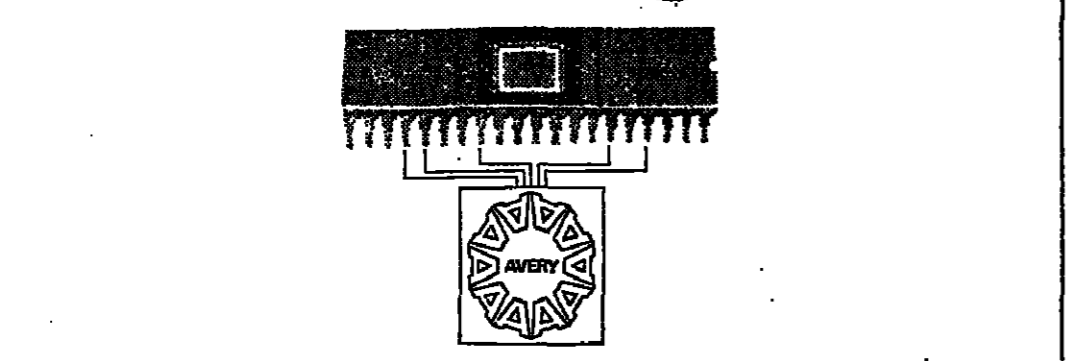
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Innovators

CONTINUED FROM PREVIOUS PAGE

electronic devices including solid-state lasers will be extensive should the technique become generally used.

But in the process and plant control area, the one sector in which electronics must gain ground rapidly as plant comes up for renewal is in the design of control panels. Anyone who has walked round a big power station must have asked himself how any human being can keep track of all the dials and charts. Yet engineers began talking about ergonomic design of control centres at least 15 years ago.

Now, the visual display unit, which owes so much of its recent rapid improvement to micro-electronics, is capable with a single colour TV-type screen of replacing 45 feet of instrument panel. But that is because the VDU can operate dynamically to pinpoint any particular reading that demands urgent attention.

Many power stations have started to use such displays, with their control keyboards, to simplify the operators' tasks. Meanwhile, new contenders for the job of "instant" information presentation are appearing on the scene, including large liquid crystal displays and gas discharge panels which promise to be less fragile than the VDU in tough operating conditions.

There are areas in process and manufacturing control where a great deal of research still has to be done. Particularly difficult is the technique of teaching a computer to recognise patterns or shapes. But this is a prerequisite for any satisfactory application of robot control to a production or assembly line.

IBM has been applying its not inconsiderable resources to automatic assembly and has succeeded in building equipment that will put together a number of quite intricate components at speeds many times faster than a skilled human can achieve—and go on doing this without a tea break or time off to go home.

For the time being, however, the robot assembler needs a powerful control computer to run it plus the backup of a large processor costing about

\$2m to do the requisite software development. It could take quite a few years to compress all that into a few chips, so the appearance on the market of general-purpose robot assembly lines for any industry is unlikely before the turn of the century.

But IBM certainly intends to use robot assemblers in its own plants and many car makers, particularly in Japan, are using comparatively simple fetch-and-carry robots, each with its own micro-processor or analogous controller, to perform hard or dangerous tasks. So the bases for a considerable extension of automation at the very foundations of manufacturing already exist.

Cameras

Borrowing from the bat, the latest camera in the Polaroid series finds the distance of its subject by emitting an ultrasonic "chirp" and measuring the time it takes for the echo to return.

Bats have been using this technique for, possibly, 100m years to avoid obstacles during nocturnal flying, but also to find their insect prey. And the discharge panels which promise to be less fragile than the VDU in tough operating conditions.

The Polaroid range-finder uses a disc of a complex compound—usually lead zirconate titanate—which has the property that an applied voltage will produce a pulse of ultrasonics at a frequency far too high for human perception, and far higher than the bats' 18,000 to 20,000 cycles per second.

The trigger voltage is applied when the range-finding button is depressed. This action also sets off a timer under the control of a micro-electronic device, which counts the delay between omission and return of the echo time to give distance detector head.

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MICROELECTRONICS V

The impact on industrial plans

VERISH ACTIVITY has been evident in the past year on the part of European governments which want to make up lost ground in the manufacture and application of micro-electronics. In Britain, two new committees have been formed to look at the semi-conductor chips. In France, three new projects have been announced which are intended to result in huge investments in new production plants. In Germany, Siemens and the Federal Government have continued to invest substantially in research and capital expenditure. In the U.S., the Strategic Plan for the development of intelligent electronics in the U.S. and Western Europe 1977 to 1978.

One of the first of the new projects to be announced last summer was the British National Enterprise Board's subsidiary, IOS, which has been allocated funds of £50m to attack the mass market for standard micro-processors and memories. This was closely followed by the announcement of a joint venture agreement between the Federal Electric Company and the British Electric Company. In California, the semi-conductor company EFCIS, jointly owned by Thomson CSF and the U.S. Energy Authority, has announced a technological agreement with Motorola for the development of a new plant. In Texas, the semi-conductor company Mostek is also planning to set up a plant, either in Scotland or Ireland. In France, the semi-conductor company STMicroelectronics is planning to increase capacity by 50% in 1979. In the U.S., the semi-conductor company Intel is planning to increase capacity by 50% in 1979. In Japan, the semi-conductor company Toshiba is planning to increase capacity by 50% in 1979.

Additional manufacturing capacity is also being provided by the major U.S. companies which have manufacturing subsidiaries in Britain: Intel, National Semiconductor, Texas Instruments, and Mostek. In Scotland, the semi-conductor company STMicroelectronics is planning to increase capacity by 50% in 1979. In Ireland, the semi-conductor company STMicroelectronics is planning to increase capacity by 50% in 1979. In France, the semi-conductor company STMicroelectronics is planning to increase capacity by 50% in 1979. In the U.S., the semi-conductor company Intel is planning to increase capacity by 50% in 1979. In Japan, the semi-conductor company Toshiba is planning to increase capacity by 50% in 1979.

ation of a series of reports on the industrial, strategic, and even the philosophical implications of this vigorous new technology. The Nora report in France, called "L'Informatisation de la société" is one example. The Advisory Council for Advanced Research and Development report to the Cabinet in Britain is another.

More recently, the U.S. consultants Arthur D. Little produced a huge report whose very title contains a new concept with astonishing implications. It was called "The strategic impact of intelligent electronics in the U.S. and Western Europe 1977 to 1978."

Baffling

The idea that electronics can be "intelligent" may sound baffling to the outsider, but it is now accepted as a commonplace by most people in the micro-electronics industry.

This fact, and its implications, partly accounts for the recent flurry of activity in Europe. If electronics are going to become intelligent, the argument runs, then the military as well as the industrial strategy of developed countries demands that they should be able to manufacture the devices.

The intelligence of micro-electronics devices derives from the fact that they can be programmed to react in different ways to different stimuli, whether in controlling an industrial machine or in manipulating words and phrases in a text-editing terminal.

The capacity of micro-processors and memories is now becoming so great that the programming of even low-cost devices is becoming extremely complex. So although their intelligence is never creative or original it can certainly replace the work of clerks and skilled machine operators in a wide range of industries.

Until about two years ago it was widely believed in Europe that it would be possible to remain competitive by clever programming design of systems which would be assembled from equipment using standard U.S. or Japanese-made components. However, that view is coming under increasing attack because of the rapid pace of development of micro-electronic circuits. Already about 200,000 separate components can be etched on to a single silicon chip. In five years' time it is expected that packing densities will have reached 5m compo-

nents per chip, while the design of these extremely complex circuits will have been speeded up with the aid of computers.

By this stage it will be possible to etch complete sub-systems of computers (or other devices) as well as large sections of the programme instructions on to a single chip. The design of the "intelligence" will then have passed to a large extent into the control of the semi-conductor manufacturers. Moreover, companies which do not have access to the technology of silicon chips may find it difficult to design competitive systems at all.

This probability explains why European governments are preparing to spend more than \$1bn over the next five years in developing integrated circuit manufacture with the help of American technology. It also explains why electronic systems companies such as GEC, Thomson CSF and Siemens are all now convinced of the need to take an active part in the semi-conductor industry.

The question remains, however, whether the new European companies and joint ventures can be successful in the highly-competitive world market against continuing pressure from the leading American companies and the newer challenge which is emerging from Japan.

To some extent the European companies will enjoy the protection of preferential purchasing, for example from telephone authorities which require special circuits in large volumes; from the automotive industry, which may have special large-volume requirements in Europe which are different from those in the U.S.; and from the television industry, where similar conditions apply.

M.W.

However, it must be said that the semi-conductor industry tends to place an inordinately high premium on mass production. If a circuit is required in large quantities of, say, 1m or more, the economics will be determined by the competition of the most efficient companies in the world. If smaller companies wish to make a living by making special circuits in low volume, they can do it only if they can justify charging a very much higher price than the going rate for mass-produced circuits.

Tough

For these reasons many observers believe the going will be very tough for the European companies which try to break into the big league of mass production based on world sales. With government support, some of the new ventures will almost certainly succeed, or at any rate not altogether fail.

But even if markets for the new high technology products continue to expand at 20 to 30 per cent a year, it seems unlikely that all the present competitors can stay in the race. The main reason is that research costs and capital expenditures will continue to rise steeply as patterns etched on to the chips become ever smaller, with individual lines only one micron (a millionth of a metre) wide or less.

Sooner or later, therefore, it is likely that a shakeout will occur, as happened in the manufacture of mainframe computers and the large, successful companies will gobble up the smaller competitors. Whether the European ventures will be able to grow fast enough to survive this process, remains to be seen. Maybe some of them will.

Competitors scramble to catch up

TWO YEARS or so ago, when the well-known software and systems independent group CAP—Computer Analysts and Programmers—decided to invest a great deal of money in equipment and methods for writing instructions sets for micro-processors, many people in the industry thought the senior partners were backing a certain loser.

CAP's Microsoft, they said, was premature, would be addressing the wrong products because the industry was developing so fast, and that in any case it was doubtful whether microprocessors would have much impact on computing at any level, including that of the mini.

To the extent that replacing four boards in a mini by a single board with memory and controllers at a quarter the cost is no great event so far as total system cost is concerned, the critics were right. But since the micro can perform so many functions conferring a modicum of independence on visual display units, intelligent terminals, printers, etc., it is obvious that it has to affect the industry at all levels.

Premature

Possibly Microsoft was premature and preached to the unconverted for a year before the upsurge of interest in the potential uses of microelectronics. But with the ability, through the development of ingenious software, to simulate the working of practically any micro and convert the instructions derived during such exercises into operating routines which can be stored in compatible micro-memories, Microsoft and its emulators have secured an advance over other groups which are now frantically scrambling to make up for lost time.

Microprocessor software is not easy to write. In the period 1976-77 a number of instances came to light where time taken to program relatively simple equipment built around a micro was four to five times that which would have been needed to do the same task with a mini. But in several cases the latter solution was ruled out because of volume constraints, and the users had to put up with the fact that while equipment costs were declining, software costs were expanding at a very fast rate—which is fine on an open-

ended defence budget, but not so good in the hard world of commerce.

There is small wonder that would-be users are frequently warned not to expect an off-the-shelf "personal" computer to do payroll and stock control even for the smallest company. A machine can be bought for £500, and it is not a gimmick. But to do serious computing on a routine basis, handling all the figures that commercial practice and the Inland Revenue now demand, a would-be user should start to think around the £10,000 mark, a good part of which represents systems and applications software.

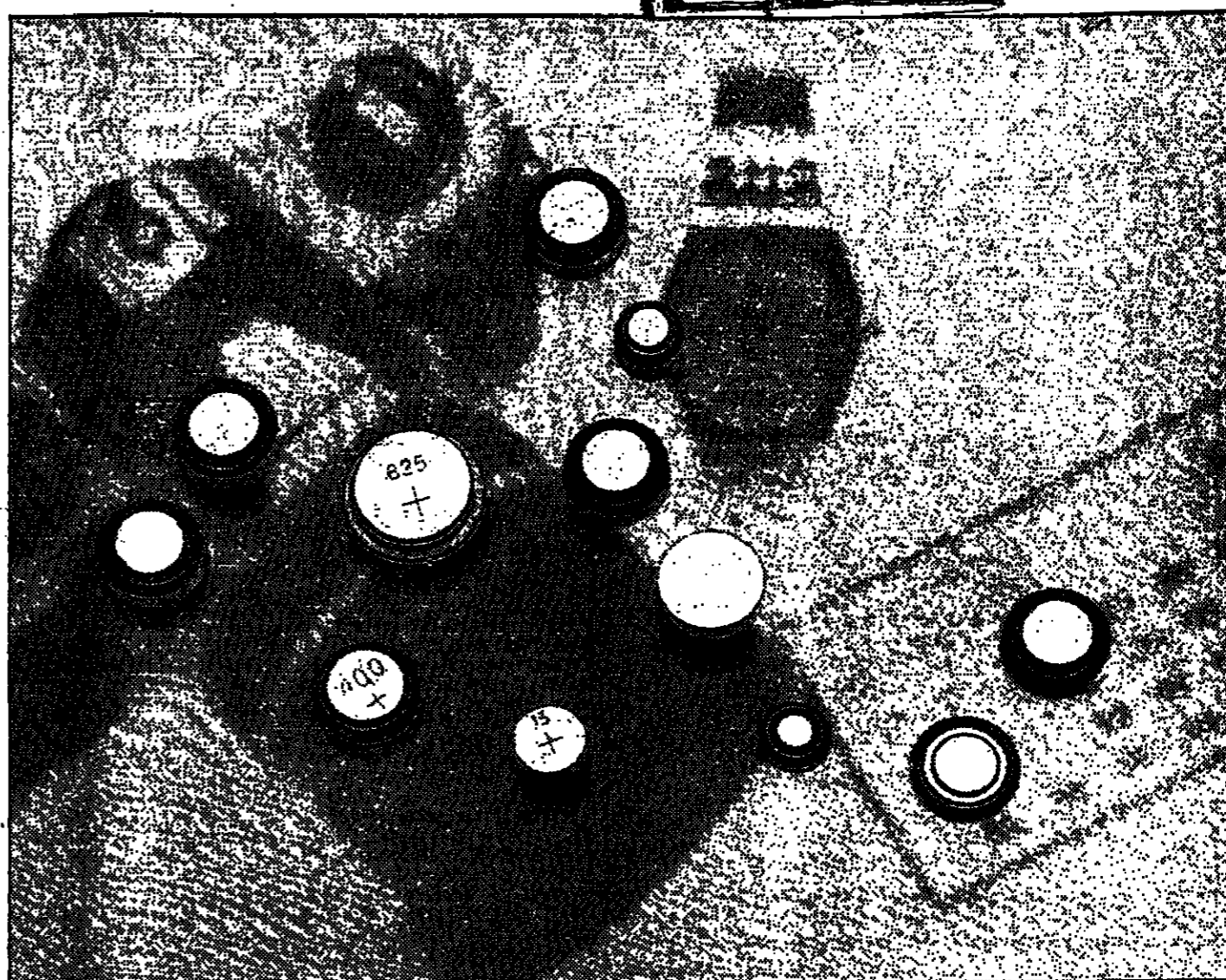
Indeed the resentment between established makers of small business computers and the entrepreneurs now pushing into that market with micro-based products is coming to a head precisely over this point of the provision of adequate software and the continued support of it by the supplier.

Announcing a further investment in library software programs for its business systems recently, Philips Data Systems made it known that in its opinion smaller companies were not offering the support a first-time user needed and represented a far greater risk for the buyer.

The investment decided on amounts to £2.5m and it will go towards expanding the routines available as part of the total package with the various machines supported by Philips and offered in what one might call a "bundled deal." Philips will write special routines if users insist but the company generally prefers to supply software, it knows from experience, will create no problems.

This question of responsibility and standards has been exercising the National Computing Centre for some time and more particularly since it became clear that any electronic engineer with up-to-date microchip and peripherals catalogues and a soldering iron can put together a working "business system" in a very few hours.

This would include display and keyboard, driven chip, discs and a printer. So one must immediately ask who is responsible if the printer disc drive collapses or the display goes down. The small entrepreneurial company is unlikely



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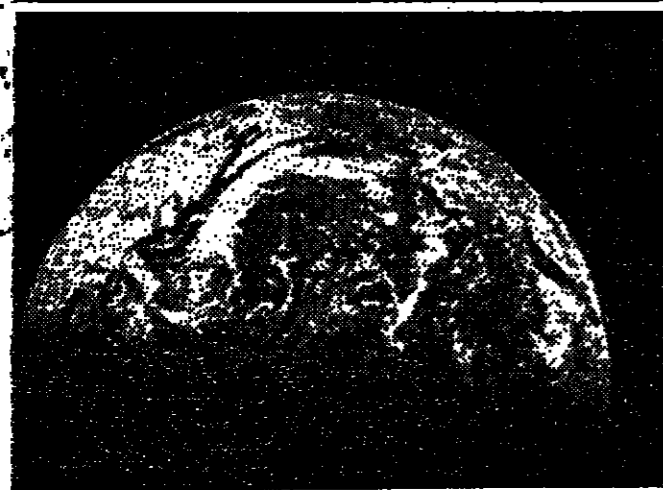
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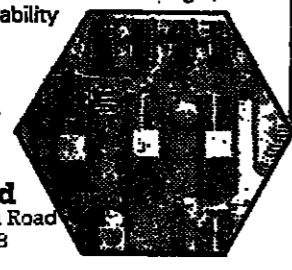
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MICROELECTRONICS VI

Important debate on industry's future

THE BIG strides made by semiconductor technology over the past 30 years, and more especially in the past 10 years, have bred a belief that further, rapid innovation can be infinite. It will not be.

Many manufacturers now reckon that the late 1980s or early 1990s will see the effective limits being reached in much micro-processor and memory development, though there will be other breakthroughs to be made elsewhere.

It is now generally agreed in the industry that leading companies will be able to construct memory devices with 1m components on them by the mid-1980s (though there is some debate about whether or not there will be a market for them).

By that time, too, 32- or even 64-bit micro-processors may be in service. Whether that will mark a pause in the development of the technology is impossible to say, though some experts believe it will, and that semi-conductor invention will branch out into opto-electronics (a development already healthily under way) and other avenues at present barely explored.

One reason for believing that there is an effective end in sight is that the production technology will have effective limits. At present, most chips are made with optical masks, which can give feature sizes of down to four microns, or thousands of a millimetre.

However, so-called projection aligners are now available which can give widths of three or even two microns, while it is possible to have—for a high cost—advanced electron or E-beam machines which can yield widths of one micron or less. X-ray techniques also carry the engineer down to these unimaginably narrow widths. Progress beyond that will be in fractions of microns.

Technique

A necessarily simplified description gives an impression of the difference in the techniques. Using optical masks, the pattern of the chip is made on a large photographic plate, then progressively reduced on two different cameras, and then replicated on masks 200 to 300 times over.

Each reduction process, especially the last, is a potential source of errors, largely because the wavelengths are comparatively long. Using electron beams, with much shorter wavelengths, and drawing patterns directly on to the masks, components of one micron or less can be accurately reproduced.

The technique has its drawbacks: it is very expensive, and many times slower than optical processes; and it is quite possible that E-beam machines will be used in semi-conductor houses in conjunction with optical processes—the E-beam making the masks, and optical and X-ray processes replicating the chips from these masks.

If there are limits to the production technology, it seems that there are few limits to the applications to which chips will be put in the future. Indeed, one manufacturer (General Electric of the U.S.) claimed recently that we were still standing on the threshold of micro-electronic developments worldwide, and that every conceivable area of human work and leisure would undergo major—and of course beneficial—change because of it.

The following list is far from exhaustive, being confined mainly to new or relatively new

market segments worldwide (the list is largely based on Fairchild Camera estimates).

In car, truck and bus production, micro-electronic technology accounted for \$115m in 1973, and is targeted to rise to \$788m in 1982—a seven-fold increase (see graph).

In the pocket calculator market, it is thought that \$150m-worth of semi-conductors will be used annually in each year to 1982. Digital watches are forecast to use \$60m-worth of chips each year in 1982. The worldwide stereo market for semi-conductors is expected to grow from \$385m in 1976 to \$708m in 1982.

In two smaller markets, semi-conductors in microwave ovens will grow from a value of \$2.8m in 1976 to \$17.6m in 1982; and in the telephone handset chips will grow from \$2.4m in 1979 to \$10m in 1982. However, there will be a much larger take-up in worldwide telecommunications networks, in exchanges and in other peripheral equipment.

In the mini-computer market, the figures are much larger: the market should rise from \$26m in 1970 to \$1.1bn in 1982. Single-chip micro-processors will be selling \$122m in 1982 compared to \$26m in 1977, while board system micro-computers will be at \$235m in 1982, up from \$37m in 1976. Finally, intelligent terminals should take \$204m-worth of chips in 1982 against \$37m in 1976.

This list greatly understates developments. In many of the "old-fashioned" technologies, growth in micro-electronics, paradoxically, will be even greater. Defences (which can be given the credit for pioneering development in the field) will become increasingly dependent on micro-electronic technology, especially in signalling and in range-finding; while medical equipment is now a comparatively large user of chips and will become a much bigger one.

The list further extends into domestic appliances such as cookers, washing machines and refrigerators, then loops back into the traditional market of large computers and extends into various forms of process control in manufacturing, together with stock-control systems and diagnostic devices.

What will the micro-electronics industry itself be like in the future? This question naturally exercises its executives and workers, and there is currently a fascinating debate going on within the industry on two quite separate, but not necessarily mutually exclusive, strategies for semi-conductor companies going into the 1980s.

The debate found public forum in the recent Financial Times/Mackintosh Consultants conference, "Tomorrow in World Electronics", when the protagonists were Dr. Richard Petritz, managing director of Immos, and Dr. Lester Hogan, vice-chairman of Fairchild—competitors in both the U.S. and the UK.

The argument therefore was far from an academic one and it is one being waged throughout the industry on its outcome, the shape of the industry and the companies in it will depend.

On one side, the argument runs like this. For the past ten years, the semi-conductor companies have been "manufacture-orientated"—or, as Dr. Hogan



The "Zapper"—a laser mask eraser—is one of the rigid quality control checks used by the Siliconix group in its mask-making process. Integrated circuits represent more than half of Siliconix's sales; these devices include analog switches, analog/digital converters, telecommunication ICs and timing devices

put it, "technology driven." That is, they were most concerned to invent and innovate, bringing on to the market the latest brainchildren of their designers and allowing the customers to come to them.

There always seemed to be a market for the products, and so the companies' designers simply continued to reach greater and greater levels of sophistication. However, the sophistication is now becoming so great that the next generation of chips, or the next after that, will meet almost any conceivable systems requirement. The effort no longer will be directed at invention, but at systems design and the marketing of products. The companies must begin to find out what the customer wants.

As Dr. Hogan put it: "The volume production will no longer go to the world's most complex chip. The volume production will go to the chip that reduces the total systems cost the most."

That in turn will dictate a profound change in company structure. The high-volume semi-conductor production houses will be the dinosaurs of the late 1980s. Instead, vertically-integrated electronics companies will become the order of the day.

Dr. Hogan said: "In many cases large systems will require a large number of different chips but a small quantity of certain ones. The manufacturing process must change dramatically, and it will be extremely difficult for present-day manufacturers to maintain the present-day structure of the industry."

"Vertical integration from component design through system manufacture and sale appears to be the prime requisite."

The opposing argument runs: cost has always been the prime consideration of the semi-conductor business, where the regular practice is forward pricing—quoting delivery

prices for, say, six months in the future which are below present production costs. This process can be reasonably expected to continue.

In practice, that means that the large users will seek ways of sourcing their chips at the lowest possible cost. In-house manufacture of the kind proposed by Dr. Hogan, where a vertically integrated company makes small batches, will never have the price edge over high-volume houses making multi-application processors, memories and micro-computers.

Dr. Petritz, whose company, Immos, to a large extent depends on his hunch coming off, argued that even those companies, like IBM, which presently produce chips in-house for their own use will be forced on to the open market for their chips purely because of the competitive pressures of price. Indeed, Dr. Petritz cited the recent purchase by IBM of batches of Intel chips as one such straw in the wind.

So, the lines are drawn: vertical integration versus mass production. Both sides are certain of the correctness of their analysis. Dr. Hogan: "Personally, I believe that 10 years from today there will be no large pure semi-conductor companies surviving." Said Dr. Petritz: "I will bet that ten years from now IBM will be buying in all but its most specialised chips."

Though theoretically, the strategies are not mutually exclusive in practical terms, Dr. Petritz could be right in the immediate future and then when Dr. Hogan begins to be right, Immos and any other "pure" semi-conductor manufacturers could be absorbed into a vertically integrated company to the probable profit of both.

We shall have to wait a decade to know the result whether one or other is right, both, or neither.

John Lloyd

Competitors

CONTINUED FROM PREVIOUS PAGE

to have much pull with a supplier, particularly if the latter is situated on the U.S. West Coast. So "cheapest" in this sense could be very far from best.

But at the same time, one could ask the question "What is a business system?" Texas Instruments, which claims with some justification to be the world leader in advanced micro-electronic memory products, has brought out very recently a business decisions package which takes the form of software stored in memory that can be plugged into a number of the company's programmable calculators.

It contains 11 programs including a self-check routine but also procedures for long-term financing, debt financing, investment evaluation, re-order timing, etc.—all routines which would normally need the services of a relatively large computer and expert staff to set up and run. But Texas is supplying this particular business decisions module for £32. A small printer can be coupled to the calculator.

Shall we then see, in the next five years or so, an industry developing in such a way that, besides being able to walk into the High Street computer shop and buy the components for a system of his choice, a user will be able to select off-the-shelf all the plug-in software routines required to run the computer and its peripherals and do all

the tasks specified on the wrappers?

Perhaps not in five years, but certainly in 10 since Texas is not the only circuit manufacturer working towards this end. Indeed if the cost of processing and memory devices continues to drop as it has it is hard to see where else makers will go, and that is where National Semiconductor as well as Texas is aiming.

Prospects

Looking up-scale from the area now served mainly by the small mini, one can see a large area of computing open to an ingenious use of multiple micro-processors harnessed to a common task. Several attempts have been made in the past five years to do just that but apart from initial claims of "power equal to that of a large 370" from a handful of micros, very little more has been heard.

With Pulsar, however, Digital Equipment Corp. is making a serious attempt to provide a commercial unit based on up to 16 of its own LSI-11 micros and has demonstrated processing power in real-time work some 50 per cent better than that of the PDP-11/70. DEC's most powerful mini. But the software tells the user that Pulsar is a single standard DEC mini.

In Britain, National Physical Laboratory and Seicon are using a "ring" of Ferranti Argus

700F computers in the Demos project which may result in an extremely powerful machine with unmatched ability to recover from the failure of one or more component computers.

UMIST, rapidly assuming a European lead in research on what can be done with micro-processors, has set up MAU—Microprocessor Applications Unit—to study such structures as Cyba-M which is also an array of 16 micros. MAU has experience of many microprocessor devices and with its 30 experts in the area is offering training and a technology transfer service from the laboratory to the production floor.

At the apex of microprocessor applications is the distributed array processor (DAP), with which ICL in Britain appears to have won a world lead despite very belated and grudging official support. This machine, which at the moment requires a large computer to control it, has an array of 64 x 64 simple but very fast processors each with its own memory store. It will carry out the same operation simultaneously in all the elements of the array and will become invaluable in working on many groups of data like those which occur in weather forecasting and the modelling of such global operations as those of the big petroleum companies, apart from its obvious military potential.

Ted Schoeters

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Companies and Markets

COMMODITIES, and AGRICULTURE

U.S. Sugar Bill again delayed

By Our Commodities Staff
RATHER DELAYS IN U.S. legislation of the International Sugar Agreement seem likely...

Canadian copper strike threat

By JOHN EDWARDS, COMMODITIES EDITOR
TALKS WERE continuing last night to avert a strike at the giant Canadian Copper Refinery in Montreal.

Cuajone mine and Inco smelter have not ended their strike. The Canadian strike threat brought a sharp rise in copper prices on the London Metal Exchange...

Foot and mouth hits France

By Terry Dodsworth in Paris
VETERINARY officers in Normandy, one of France's richest stock-rearing provinces, are struggling to contain an outbreak of foot-and-mouth disease...

U.S. FUTURES MARKETS

Battle for control

By DAVID LASCELLES in NEW YORK
REGULATION OF THE U.S. commodity futures markets has sprung to the headlines as a hot issue following news of scandals...

But Congress only gave the CFTC a three-year mandate, which meant that the agency spent most of its time fighting for its political life...

of manipulation, aided and abetted by Petrobras Comercio Internacional of Rio de Janeiro, Interbras Cayman, Acli International and its subsidiary Acli International Commodity Services...

India fixes cotton export quotas

NEW DELHI — The Indian Government has announced a cotton export quota of 150,000 bales for the 1979-80 season (September/August).

EEC needs dynamic grain export policy

By OUR COMMODITIES STAFF
THE COMMON Market needs to reform its grain export methods and develop a "dynamic" policy...

non-member buyers has been particularly disappointing. The EEC produced a record 116m tonnes of grains last year and has been disposing of the surplus by regular tenders...

Potato Board may sell back surplus

THE POTATO Marketing Board may have to sell back onto the open market some of the "surplus" potatoes bought from farmers last year under its support scheme.

Farmers count the cost of winter

By CHRISTOPHER PARKES
FARMERS in Britain are suffering from the effects of one of the longest and costliest winters for years, according to Mr. Tom Boden, deputy president of the National Farmers' Union.

house horticultural producers, also face unusually heavy fuel and power bills. "This is an ominous situation. Bank borrowing in our industry, which normally finances itself to a large extent, has rocketed," Mr. Boden said.

EEC pays for tapioca

BANGKOK—Thailand is to receive an annual \$5m subsidy from the EEC to help farmers to switch from tapioca to rice.

BRITISH COMMODITY MARKETS

Table with columns for Metal, Tin, Zinc, Lead, and various grades of metal. Includes sub-sections for Aluminium, Zinc, and Lead.

COFFEE

Table showing coffee prices for Robusta and Arabica grades, including futures and spot prices.

PRICE CHANGES

Table showing price changes for various commodities like Wheat, Soybean Meal, and Sugar.

AMERICAN MARKETS

Table showing American market prices for various commodities like Corn, Soybeans, and Wheat.

Table titled 'CORAL INDEX' showing various commodity index values.

INSURANCE BASE RATES

Table showing insurance base rates for property and other risks.

Advertisement for 'Trading Recommendations' by International Molasses, including contact information and a list of services.

RUBBER

SLIGHTLY EASIER opening on the London physical market. Fair interest throughout the day...

GRAINS

LONDON FUTURES (GARFA)—The market opened unchanged but good pricing interest was noted...

WHEAT

Table showing wheat prices for various grades and origins.

BARLEY

Table showing barley prices for various grades.

COCOA

Table showing cocoa prices for various grades.

SUGAR

LONDON DAILY PRICE (raw sugar): C103 (120) tons of 100 tonnes...

SOYABEAN MEAL

The London market opened unchanged and stayed in a narrow range...

Wool Futures

SYDNEY GREASY—Close (in order buyer, seller, business, sales) Micron...

MEAT/VEGETABLES

SCOTCH HILL—Pence per pound. Beef: Scotch hill aged 3.0 to 5.0...

Wool Futures

Wool prices for various grades and origins, including New Zealand and South African wool.

EUROPEAN MARKETS

Commodity market coverage in these columns is being extended to include French sugar, cocoa, soyabean meal and wool market closing prices...

INDICES

Table showing various indices like Dow Jones and Financial Times.

MOODY'S

Table showing Moody's credit ratings and indices.

REUTERS

Table showing Reuters market data and indices.

LONDON STOCK EXCHANGE

Eleventh-hour census nervousness causes markets to lose impetus in busiest session for two years

Account Dealing Dates
Option
*First Declares Last Account Dealing Dates...

LONDON TRADED OPTIONS table showing columns for Option, Ex'cise price, Closing price, Vol., etc.

point up fairly quickly and by noon was less than that amount away from its all-time peak...

FT-Actuaries Indices
The input of a wrong price for Rio Tinto-Zinc last Monday led to incorrect figures...

minuted forthwith. Elsewhere in the Electrical sector, Farwell contracted with a gain of 23 to 52 1/2...

comment and the expected interim profits rise, before settling for a net rise of 2 at STP.
After remaining quietly firm for most of the day overseas registered mining issues fell away sharply in the wake of the currency premium...

FINANCIAL TIMES STOCK INDICES

Table with columns: March 28, 27, 26, 25, 24, 23, 22, 21, 20, 1978

HIGHS AND LOWS S.E. ACTIVITY

Table showing High, Low, and S.E. Activity for various sectors like Govt Secs, Fixed Int, etc.

APPOINTMENTS Lord Charteris joins RTZ

Lord Charteris has been appointed a director of the RIO TINTO-ZINC CORPORATION. Lord Charteris was previously Secretary to the Queen and Keeper of HM's Archives from 1972-77.

OPTIONS DEALING DATES

First Last Last Deal-Deal-Decla-Settl-ings tions ment ment Mar. 20 Apr. 2 Jun. 14 Jun. 26 Apr. 3 Apr. 17 Jun. 28 Jul. 10 Apr. 18 Apr. 30 Jul. 12 Jul. 24

ACTIVE STOCKS

Table of Active Stocks with columns: Stock, Denomina-tion, Closing price (p), 1978-79, 1978-79

RECENT ISSUES EQUITIES

Table of Recent Issues with columns: Issue Price, Denomina-tion, High, Low, Stock

"RIGHTS" OFFERS

Table of Rights Offers with columns: Issue Price, Latest Renewal Date, High, Low, Stock

FT-ACTUARIES SHARE INDICES

Table of FT-Actuaries Share Indices with columns: EQUITY GROUPS & SUB-SECTIONS, Index, Day's Change %

Table of Fixed Interest Price Indices with columns: British Government, Index, Day's Change %

LEADERS AND LAGGARDS

Table of Leaders and Laggards showing percentage changes for various sectors like Mining Finance, Food Retailing, etc.

AUTHORISED UNIT TRUSTS

Table of authorised unit trusts including Minster Fund Managers Ltd., MLA Unit Trust Mgmt. Ltd., Friends' Provident Unit Tr. Mgrs., and various other fund managers with their respective unit names and prices.

Table of Provincial Life Inv. Co. Ltd., Provincial Life Inv. Co. Ltd., Provincial Life Inv. Co. Ltd., and other insurance and investment companies with their unit names and prices.

Table of Schiesinger Trust Mgrs. Ltd., Target Tr. Mgrs. (Scotland) (a) (b), Transatlantic and Gen. Sec. Co., and other trust and investment managers with their unit names and prices.

Table of offshore and overseas funds including Alexander Fund, Keyser Ullmann Ltd., and various international investment funds with their unit names and prices.

INSURANCE AND PROPERTY BONDS

Table of insurance and property bonds including Abbey Life Assurance Co. Ltd., Crown Life Assurance Co., London Indemnity & Gen. Ins. Co. Ltd., and other insurance companies with their unit names and prices.

NOTES

Notes regarding the accuracy of the data and the inclusion of certain items, such as 'Prices do not include 5 p.p.m. stamp, except where indicated'.

Food values

FT SHARE INFORMATION SERVICE

FOOD, GROCERIES—Cont.

BRITISH FUNDS

Table listing British Funds with columns for High, Low, Stock, Price, Div., Yield, and Net. Includes 'Shorts' (Lives up to Five Years) and 'Over Fifteen Years'.

Over Fifteen Years

Table listing funds under the 'Over Fifteen Years' category.

Undated

Table listing undated funds.

INTERNATIONAL BANK

Table for International Bank with columns for Stock, Price, Div., Yield, and Net.

CORPORATION LOANS

Table listing Corporation Loans with columns for Stock, Price, Div., Yield, and Net.

LOANS

Table listing Loans with columns for Stock, Price, Div., Yield, and Net.

FOREIGN BONDS & RAILS

Table listing Foreign Bonds & Rails with columns for High, Low, Stock, Price, Div., Yield, and Net.

BONDS & RAILS—Cont.

Table listing Bonds & Rails with columns for High, Low, Stock, Price, Div., Yield, and Net.

BANKS & HP—Continued

Table listing Banks & HP with columns for High, Low, Stock, Price, Div., Yield, and Net.

CHEMICALS, PLASTICS—Cont.

Table listing Chemicals, Plastics with columns for High, Low, Stock, Price, Div., Yield, and Net.

ENGINEERING—Continued

Table listing Engineering with columns for High, Low, Stock, Price, Div., Yield, and Net.

AMERICANS

Table listing American stocks with columns for High, Low, Stock, Price, Div., Yield, and Net.

Hire Purchase, etc.

Table listing Hire Purchase, etc. with columns for High, Low, Stock, Price, Div., Yield, and Net.

DRAPERY AND STORES

Table listing Drapery and Stores with columns for High, Low, Stock, Price, Div., Yield, and Net.

BEERS, WINES AND SPIRITS

Table listing Beers, Wines and Spirits with columns for High, Low, Stock, Price, Div., Yield, and Net.

HOTELS AND CATERERS

Table listing Hotels and Caterers with columns for High, Low, Stock, Price, Div., Yield, and Net.

BUILDING INDUSTRY, TIMBER AND ROADS

Table listing Building Industry, Timber and Roads with columns for High, Low, Stock, Price, Div., Yield, and Net.

INDUSTRIALS (Miscel.)

Table listing Industrials (Miscel.) with columns for High, Low, Stock, Price, Div., Yield, and Net.

CANADIANS

Table listing Canadian stocks with columns for High, Low, Stock, Price, Div., Yield, and Net.

BANKS AND HIRE PURCHASE

Table listing Banks and Hire Purchase with columns for High, Low, Stock, Price, Div., Yield, and Net.

ELECTRICAL AND RADIO

Table listing Electrical and Radio with columns for High, Low, Stock, Price, Div., Yield, and Net.

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COMMONWEALTH & AFRICAN LOANS

Table listing Commonwealth & African Loans with columns for Stock, Price, Div., Yield, and Net.

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Table of insurance companies such as Lloyds, Norwich Union, and various life insurance providers.

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MINES EASTERN RAND. Table listing eastern Rand mining stocks.

MINES FAR WEST RAND. Table listing far west Rand mining stocks.

O.F.S. Table listing Overseas Financial Services stocks.

FINANCE. Table listing various financial stocks.

DIAMOND AND PLATINUM. Table listing diamond and platinum mining stocks.

CENTRAL AFRICAN. Table listing central African stocks.

INSURANCE

Table of insurance companies and their financial data.

PROPERTY

Table of property-related companies and their financial data.

TRUSTS, FINANCE, LAND

Table of trusts, finance, and land-related companies and their financial data.

FINANCE, LAND, ETC.

Table of finance, land, and other related companies and their financial data.

REGIONAL MARKETS. Table listing regional market data for various countries.

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DIAMOND AND PLATINUM. Table listing diamond and platinum mining stocks.

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DIAMOND AND PLATINUM. Table listing diamond and platinum mining stocks.

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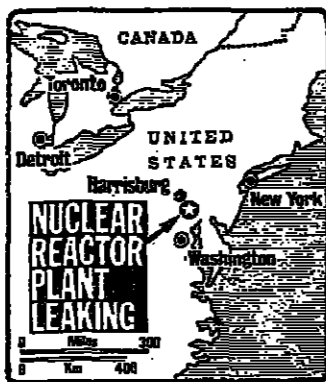
Thursday March 29 1979

TAURUS Now's the time to take the bull by the horns and rise to new industrial or commercial heights in Skelmersdale.

Emergency declared as U.S. reactor leaks

BY DAVID BUCHAN IN WASHINGTON

AN EMERGENCY was declared yesterday at a Pennsylvania nuclear power plant, after a radiation leak inside one of its two reactors reinforcing growing uneasiness in the U.S. about nuclear safety.



The Nuclear Regulatory Commission (NRC), which has sent inspectors to the plant in central Pennsylvania, said a cooling system failure early yesterday had released radiation inside the reactor containment shell, but not into the air.

Problem

Following the incident, it was difficult to judge the seriousness of the leak but local reports said some radioactive steam had escaped into the atmosphere. The NRC said yesterday: "From what we know now, it would sound like one of the most serious accidents we have had."

secondary steam loop running from the reactor heating system. Then radioactive water appeared to have leaked into the reactor containment system. Metropolitan Edison, which operates the plant, said safety devices and emergency cooling systems had all worked properly after the failure, and that no one had been exposed to the increased radiation. Nevertheless, it evacuated all non-essential workers of the 200 employed at the plant at any one time from the reactor site.

Attracted

It also coincides with the release of a film, "The China Syndrome," about a near accident in a nuclear reactor, which has attracted considerable interest in the Press and among cinema audiences. Whatever the final assessment of the NRC, incidents such as this will make it no easier for Mr. James Schlesinger, Energy Secretary, and his department to push ahead with their plans to speed up the construction of new nuclear power plants. Mr. Schlesinger has recently been arguing before Congress and its committees that nuclear power is one of the few long term means of making the U.S. less dependent on foreign oil.

Investigation to be launched into two sales practices

BY PAUL TAYLOR

THE GOVERNMENT yesterday asked the Monopolies and Mergers Commission to investigate two common sales practices not covered by existing restrictive practices legislation.

Mr. Roy Hattersley, Prices Secretary, announced the move in response to a recommendation in the Green Paper on restrictive practice policy, published yesterday. He said the commission had been asked to investigate full-line forcing—the practice of making a customer buy the full range of a supplier's goods—and tie-in sales—tying the sale of one product to the sale of another—with a view to future legislation.

The Green Paper's main recommendations include giving the Director General of Fair Trading greater discretionary powers and a broader role for the commission covering areas not included under existing competition regulations. The Paper, prepared for the Government by a team of senior civil servants and economists led by Mr. Hans Liesner, chief

economic adviser to the Department of Industry, Trade, Prices and Consumer Protection, forms the second stage of a review of existing competition policy.

To increase flexibility, it recommends that the Director General of Fair Trading be given discretionary powers in a number of areas so that he can allow minor or beneficial agreements to continue without the high cost of a court case. The Monopolies and Mergers Commission should also be given the power to investigate anti-competitive practices, referred to it by the Director General.

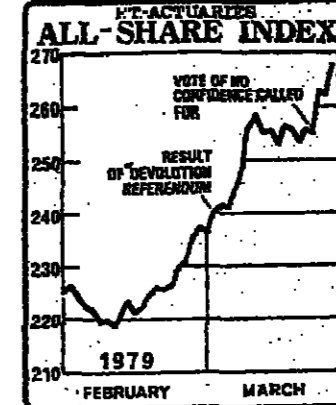
Discretionary fines are suggested for failure to register an agreement, while collusive tendering should be prohibited. Mr. Hattersley said the proposals preserved the threat of existing policy while "sharpening-up sections of the legislation and making it more flexible. A Review of Restrictive Trade Practices Policy: Cmnd. 7512, SO, 22.

Green Paper details, Page 7, Editorial Comment, Page 22

THE LEX COLUMN

Politics and the fundamentals

Index fell 0.9 to 538.3



The equity market closed last night heavily committed to a Government defeat in the confidence debate. Although some market operators were getting out ahead of the event, with share prices easing back from a midday peak, the political temperature remained very high.

Politics began to dominate the market's thinking when the devolution referendum on March 1 produced an unexpectedly close result in Scotland: the All-Share Index raked up by almost 10 per cent during the first ten days of the month and has produced a further spurt since the measure was announced last Thursday. By last night, in fact, the All-Share Index was 13.7 per cent higher than its March 1 level. The corresponding rise in the FT Government Securities Index has been a little less than 6 per cent, lending some credibility to the opinions being expressed in the gilt-edged market yesterday that the improvement in bond prices has been rather more in touch with the fundamentals than the gains in equities.

Whereas long gilts still yield around 12.3 per cent, equity yields have dropped below 5 per cent on average and the fully taxed p/e of industrials would, if calculated, be over 10. Manufacturing companies face the difficult reality of an uncompetitive exchange rate, and the prospect of a slowdown in the world economy under the influence of oil price rises.

Hudson's Bay

A key to George Weston's bid for 51 per cent of Hudson's Bay Company at C\$940 a share lies in the favourable tax treatment given to dividend income in Canada. Weston would have been pushed to make an all cash offer of this size, and the Weston family—which controls some 51 per cent of George Weston—would not have wanted their interest to be diluted by an offer in shares. Instead, The Bay is being offered a choice of cash and 81 per cent preferred shares, with the proviso that cash must make up at least a quarter of the total consideration.

Accepting UK shareholders will obviously go for the all cash option. But it will be a different story in Canada, where 81 of dividend income is equivalent to \$1.55 of interest income to an investor paying tax at 50 per cent. The preferred will also allow Canadians to defer their capital gains liabilities—and help to bolster Weston's relatively slim equity base.

Weather

UK TODAY
OUTBREAKS of sleet. Snow on high ground. Wintry showers and sunny intervals in South Wales and Southern England. Max. 6C (43F).
London, Midlands, N. Wales, N.W. England, S.W. Scotland, Isle of Man

Snow on high ground. Outbreaks of sleet. Very cold. S.E. and Cent. S. England Scattered wintry showers. Mostly cloudy.
E. England, Cent. N. England, N.E. England, Cent. Highlands, Edinburgh, Aberdeen, Borders
Periods of rain and sleet. Snow on hills

S.W. England, S. Wales, Channel Isles, N.E. Scotland, Orkney and Shetland
Wintry showers. Sunny intervals.

● Outlook: Sunny intervals and wintry showers. Night frosts.

WORLDWIDE

	Yday	midday	Yday
	1C	1F	1C
Algeria	16	17	16
Alexandria	16	17	16
Amman	16	17	16
Athens	16	17	16
Bahrain	23	23	23
Barcelona	16	17	16
Belfast	16	17	16
Bombay	16	17	16
Bonn	16	17	16
Buenos Aires	16	17	16
Calcutta	16	17	16
Cairo	16	17	16
Cardiff	16	17	16
Cebu	16	17	16
Colon	16	17	16
Hong Kong	16	17	16
London	16	17	16
Luxembourg	16	17	16
Madrid	16	17	16
Manila	16	17	16
Mexico	16	17	16
Moscow	16	17	16
Mumbai	16	17	16
Nairobi	16	17	16
Norfolk	16	17	16
Osaka	16	17	16
Paris	16	17	16
Perth	16	17	16
Rangoon	16	17	16
Rome	16	17	16
Singapore	16	17	16
Sydney	16	17	16
Taipei	16	17	16
Tokyo	16	17	16
Wellington	16	17	16
Zurich	16	17	16

UN ready to evacuate families in Uganda

By Mark Webster and John Worrall in Nairobi

THE UNITED NATIONS was preparing yesterday to evacuate dependants of its personnel in Kampala as the Tanzanian-backed forces invading Uganda closed in on the capital, Kampala.

Diplomats here reported that the invading troops had advanced five miles from the town of Mpigi, south-west of Kampala, and were occupying the village of Nabbingo, on the main road to the capital. That would put the forces only about 13 miles from Kampala.

President Daniel Arap Moi of Kenya yesterday appealed to the Tanzanians to withdraw from Uganda to avoid a worsening of the conflict. This followed a reported threat by Libya on Tuesday to intervene strongly on the side of President Amin unless Tanzania withdrew its forces within 24 hours.

In Kampala the United Nations prepared to evacuate the families of its personnel. It plans to move 150 women and children out of Uganda today, leaving only 50 of its staff.

Ultimatum

A West German Embassy official said this life in the capital was going on as normal and that people were still working. He said there was no unusual military activity. Earlier confused and unconfirmed reports said that tanks with Tanzanian markings had been seen in the streets.

Uganda radio admitted that the invaders had captured Nityana, 28 miles to the west of Kampala, and had thus cut off road and rail links between the capital and Western Province.

There remains considerable uncertainty over what the Libyan troops—stationed in Uganda and supporting President Amin—might do now that their 24-hour ultimatum to the Tanzanians to withdraw has passed.

Cable monopolies given all-clear

BY JOHN LLOYD

MONOPOLIES in the electric wire and cable industry are not against the public interest, according to a report published yesterday by the Monopolies and Mergers Commission.

Mr. John Fraser, Minister of State for Prices and Consumer Protection, told the Commons no action would be taken by Mr. Roy Hattersley, Prices Secretary, he said the Commission had been "convinced from the public interest of BICC's (the UK's largest cable maker) involvement in unregistered restrictive agreements, the most significant of which was in respect of sales of external telephone cables to the Post Office, which came to light during its inquiries."

Last June, four cable com-

panies—BICC, Pirelli General, Standard Telephones and Cables, and Telephone Cables (whose major shareholder is GEC) agreed to repay £9m to the Post Office as an "adjustment" to prices charged by them to the corporation before 1975, when they were operating unregistered agreements.

The report, begun by the Commission in July, 1974, found that: BICC and its cablemaking subsidiaries established a monopoly over supply in the UK, where a monopoly is defined as the supply of at least one quarter of the product in question. BICC and its subsidiaries supplied 35 per cent (by value) of wires and cables in the UK in 1974.

BICC and its cablemaking subsidiaries established a mono-

poly over exports from the UK, where a monopoly is defined as the production in the UK of more than one quarter of the product. BICC produced 36.6 per cent of wires and cables in the UK in 1974.

A "complex monopoly" exists in favour of a number of leading cable companies, including BICC, Delta, Pirelli General and STC, in relation to exports. All were party to various export agreements which in some way "prevent, restrict or distort" competition in the export field.

"None of these monopolies," nor any step taken for the purpose of exploiting or maintaining them "operate against the public interest."

In a number of major wire and cable products, the Commission found that BICC was

faced with powerful competitors who would take market share if BICC overcharged.

In export markets, the Commission said that the agreements entered into by the companies did not restrict domestic competition between the companies. "The agreements themselves clearly restrict competition in exports, but the home market remains the main influence on efficiency. The agreements contain no provision likely, in our view, to retard technical innovation and advance."

BICC welcomed the report, saying that the Commission's questioning was "extensive and penetrating," but the company had received a fair hearing.

Insulated Electric Wires and Cables: Commons Paper 243, HISO, price £2.75.

Cambridge group calls for import controls

BY PETER RIDDELL, ECONOMICS CORRESPONDENT

A RAPIDLY deepening world recession could occur over the next decade unless major structural changes are made in the pattern of trade—including the imposition of import controls by the U.S. and the UK. This is the central theme of an annual study published today by a group of Cambridge economists led by Mr. Wynne Godley.

The Cambridge Economic Policy Review is produced by a group called the New Cambridge School based at the Department of Applied Economics at the university. The group has consistently taken an anti-inflationist line and has advocated expansionary policies supported by import controls. Its views have considerable influence within the Labour Party, especially on the Left.

The review confirms that the

UK makes the highest per head contribution to the EEC taking all receipts and payments together.

A very gloomy view is taken of the prospects for the UK in the next decade. "On the implausible assumption that nothing is done, unemployment would rise to 23m to 33m during the 1980s and inflation would be in the 15 to 20 per cent range (when not temporarily checked by incomes policies)."

The group argues that "neither incomes policy nor fiscal and monetary restrictions nor devaluation will provide a remedy for problems of slow growth, unemployment and inflation which are becoming more and more severe. Incomes policy may help a little; financial restriction or devaluation will positively make matters

worse. General import controls and deflation to expand internal demand are now an urgent necessity."

Moreover, even though such action may be inconsistent with international rules, "if the predicament is as severe as that encountered by the UK and agreement is not forthcoming, there is a perfectly good case for breaking rules unilaterally." This call is directly counter to present policies but it is possible that existing party dominant pressures for selective import controls may re-surface after the election if the current poor import performance continues.

On a world scale, the group sees the persistence of imbalance in the structure of trade in manufactured goods as the main problem, especially the

growing share of Japan and the falling share of the U.S. and the UK.

The main danger the group considers is that the U.S. may restrict activity to eliminate its deficit, while EEC countries debate to avoid having the U.S. deficit passed on, while Japan further increases its share of trade.

The review suggests that the required changes are more formidable than can be achieved by exchange rate adjustments. What is needed, it says, is a sharper reduction in the growth of Japanese exports, restrictions on imports in the U.S. and other countries, coupled with discrimination in favour of exports of manufactured goods from developing countries.

Details, Page 8, Economic viewpoint, Page 23.

Unions set election machine in motion

BY CHRISTIAN TYLER, LABOUR EDITOR

TRADE UNIONS yesterday set in motion a formidable election machine designed to persuade the country's 12m union members that the Conservatives must be prevented from regaining power, however unpopular Labour's wage controls may have been.

Although many union leaders doubted that the Government would lose last night's confidence vote in the Commons, they decided in advance of the MP's verdict to prepare a combined campaign in 50 or 60 major seats.

For the first time, major unions affiliated to the Labour Party will be working in concert with a programme of speeches, canvassing, leaflets and posters. A campaign bureau is to be established in London, at offices of the General and Municipal Workers Union, to respond to what the unions believe will be a major issue of the election—Conservative proposals for legal restrictions covering the conduct of industrial disputes, union elections and the closed shop.

The campaign, which will be conducted by a Trade Union Committee for Labour Victory, is certain to draw in the TUC. Mr. Len Murray, its general secretary, will be able to waive the TUC's customary political neutrality by promoting a TUC Congress resolution of last autumn giving unqualified sup-

port to a Labour Government. The joint union committee will produce a special broadsheet for the campaign. Advertising in the national Press has been discussed but this may not be followed up on the grounds that a selective campaign in vulnerable constituencies is the priority.

Yesterday's meeting of the TUC general council endorsed a statement by Monday's session of the TUC-Labour Party liaison committee—that Conservative policies "would be harmful to the interests of the British people." In particular, it pointed to Tory policy on Common Market farm prices, the role of the National Enterprise Board, job protection, public expenditure and the emphasis on legal curbs "in industrial relations."

Mr. Murray said after the general council: "This Labour Government has been good for the nation and it has been good for trade unionists and working people, and we want to see it sustained in office."

Mr. David Bannett, chairman of the campaign committee, said of the central aim would be to tell trade unionists that only a Labour Government, acting by consensus rather than confrontation, could solve the country's economic problems.

Campaign tactics, Page 10

Lorry weight inquiry is on, with wider brief

BY IAN HARGREAVES, TRANSPORT CORRESPONDENT

THE GOVERNMENT is to go ahead with its controversial inquiry into weight limits for lorries, but has decided to cast the inquiry in a much wider form than originally expected.

Mr. William Rodgers, the Transport Secretary, told the House of Commons yesterday that the inquiry's terms of reference would be "to consider the causes and consequences of the growth in the movement of freight by road and in particular the impact of lorries on people and their environment. The committee would be asked to advise how to ensure that future developments in road freight 'should best serve the public interest.'"

In spite of this vague outline, there is no doubt that the central, practical result of its investigations will be to decide whether there is a case for Britain's agreeing to a European Commission proposal for a maximum gross weight of 44 tonnes (43.1 tons).

Britain's existing limit is 32 tons and although the heavier generation of lorries would not look different—indeed many are already operating in Britain with reduced payloads—environmentalists argue they would be more disruptive and dangerous and cause more damage to roads.

The concept of an inquiry into lorry weights has been gestating for a long time in the Department of Transport, but it became controversial in October when an internal memorandum on the subject was leaked to Fleet Street.